

The Mining Journal

Established 1835

Railway & Commercial Gazette

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LONDON, OCTOBER 22, 1954

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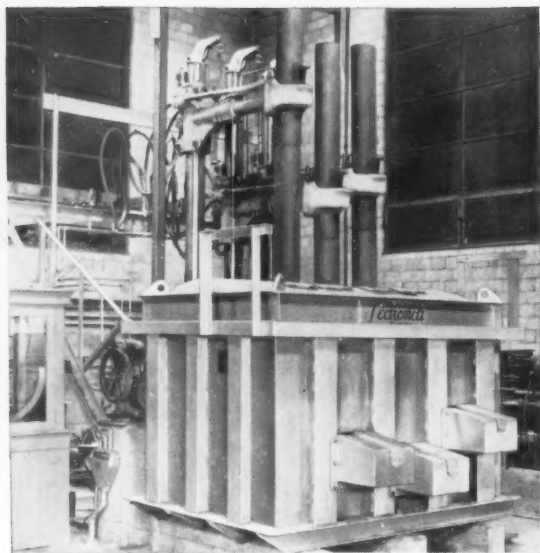
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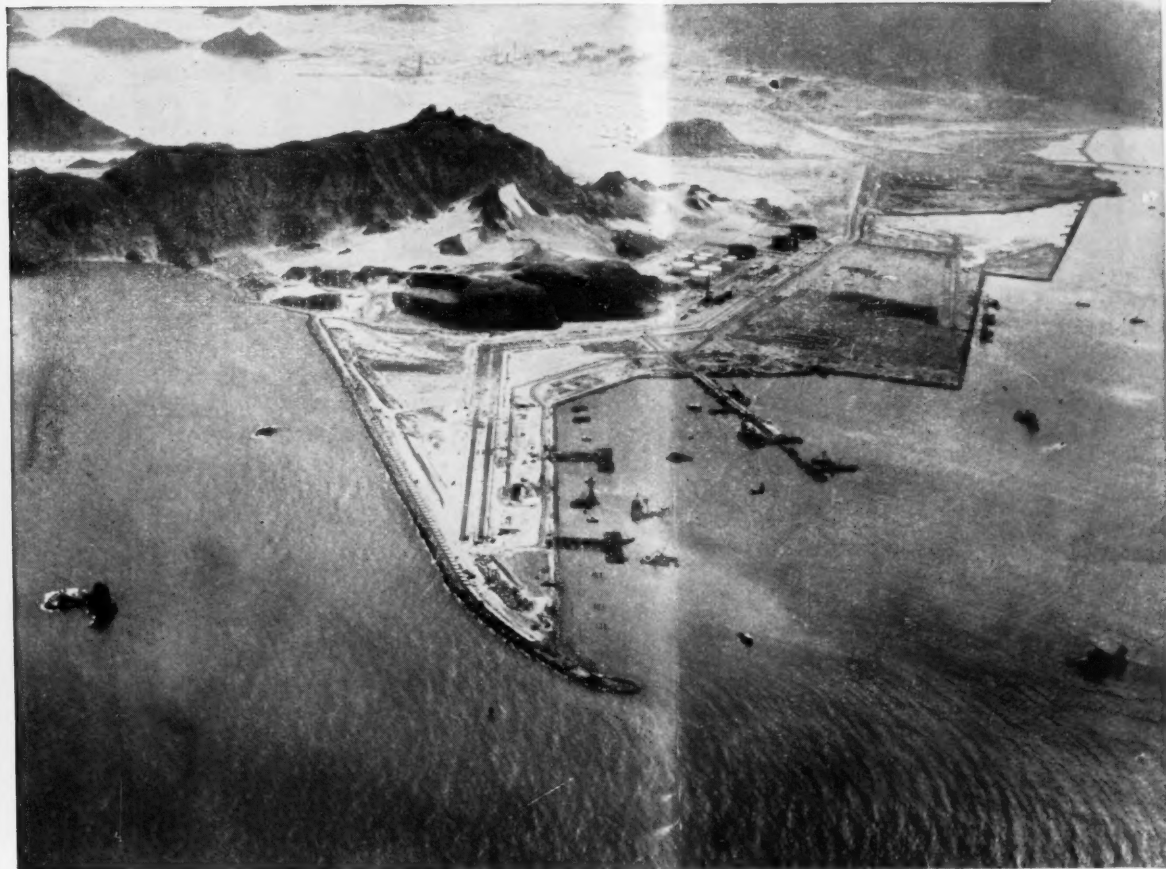
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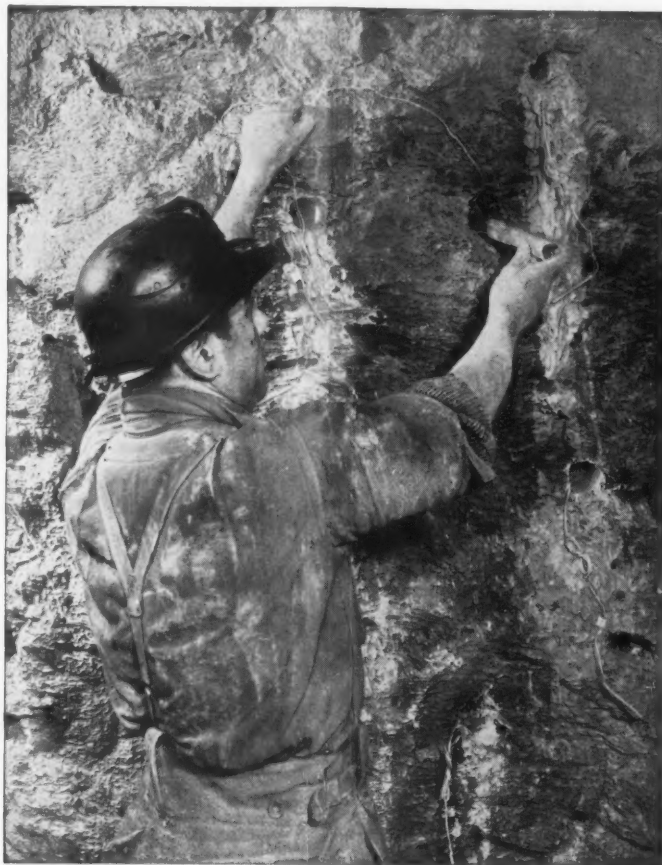
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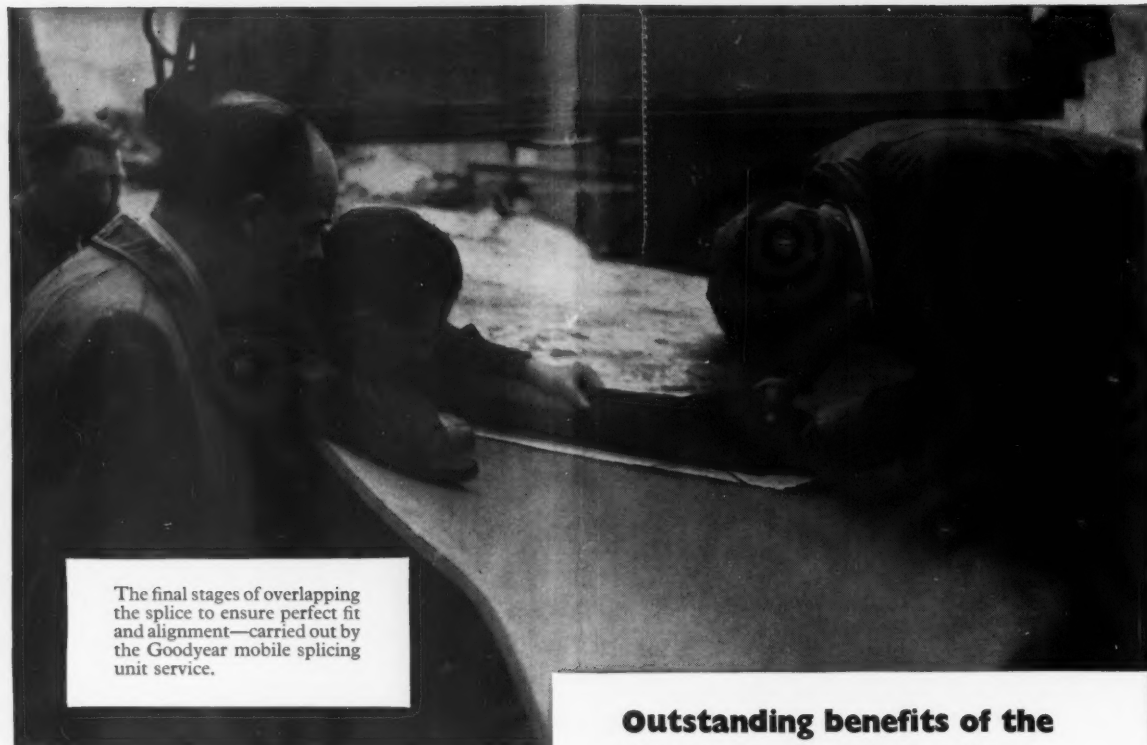
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NOTES AND COMMENTS

Copperbelt Labour Relations

The report of Sir John Forster's inquiry into the problem of the advancement of Africans in the Copperbelt contains nothing that is startling, but the reader, especially if he uses copper, will find disturbing confirmation of much that he has already heard; and it is precisely because the report goes over old ground that it is important. One cannot shuffle the cards indefinitely; there comes a time when the cards have got to be played; and, for the Copperbelt, it looks as if the time has come.

The report is an orderly document. It starts with an historical survey, proceeds to examine present wages and conditions, gives the case for the various parties and then presents its conclusion. Readers of *The Mining Journal* will be familiar with the history of the problem and it only remains to add that the parties have not changed their standpoint, in any important sense, during the negotiations. In its conclusion, the report, in effect, lends its support to the copper companies.

African advancement, the report states, has been held up by a difference of opinion on "the rate of pay and conditions of service to be awarded to Africans promoted to work now being done by Europeans, and, secondly, the necessity and propriety of fragmentation of such work."

In discussing the repercussion of granting the European rate of remuneration to Africans the report accepts the view of the European Union that "it must be appreciated that the principles which are adopted by the Mining Companies as a result of the report of this inquiry will be regarded as a binding precedent throughout every industry in the Federation." The report believes "the conclusion inescapable that the establishment of the principle of awarding to any African so promoted the European rate of remuneration would disrupt the African wage structure throughout the Federation and seriously threaten the national economy. The court is conscious of the social implications of granting a 500 per cent wage increase but, since such changes cannot be calculated or regarded as conclusive evidence, it prefers to rest on the companies' assurance that to put the Africans into direct competition with the Europeans would render the Africans unemployable. On the other hand, the court

does not accept that advancement with differential rates "is unfair, specially having regard to the Companies' readiness to guarantee the unreduced employment of all their European employees" nor that it constitutes "a cheap labour policy."

On fragmentation the court says "we are satisfied that a reasonable degree of African advancement will be achieved only by making available, at rate of remuneration duly related to the African wage structure, work which, having been simplified by the fragmentation of some of the European jobs, will provide some missing rungs in the African industrial ladder."

The report records a slight advance in the problem of fragmentation made during the court's inquiry. The European Union recognized the need for some fragmentation and for some difference in rates for Africans, but only during a controlled probationary period at the end of which Africans would have to be given the same rate and emoluments as Europeans employed on similar work and would have to join the European Union. The advance is more apparent than real. By contrast, the European Staff Association has accepted the advancement of Africans to suitable jobs on the basis of fragmentation and at rates related to the African wages structure and suitably adjusted to the African's increased responsibility.

An interesting section of the report gives more details of the breakdown of the four-party talks earlier this year. A sub-committee had, in fact, done much useful work in identifying suitable jobs for Africans when up cropped "crane chasing" which "consisted in giving the necessary signals to a crane driver in respect of the lifting, moving, or lowering of any article or bundle of articles attached to the chain of the crane. This work was being done by African workers at one copper mine, but at other mines by European workers who also had other duties. The other duties were not precisely agreed upon but were described by the representatives of the European Union as those of a ganger in charge. The European Union, therefore, contended that crane chasing was only part of a European grade of work known as 'operator.' They further contended that the operator's job could not be broken down so as to

make crane chasing a separate job. Africans could be employed only on crane chasing, which, it must be noted, they were then doing on one mine at a rate of pay in the African wage structure but, if they were so employed, they must be regarded as operators and be given the pay and conditions of service of that category in the European wage structure. The representatives of the Companies contended that crane chasing was a clearly identifiable and separate job into which African workers would be able, after training, to advance, while releasing European operators for other responsible work."

The incident illustrates perfectly the difficulty of securing agreement with the European Union on "identical" or "fragmented" jobs—the core of African advancement.

The significance of the report is that African advancement is no longer a subject for courts of inquiry—it is a policy that must be implemented. The Companies have two courses open to them. One is not to make a move without the agreement of the European Union; and that means not to make any progress at all. The other is to press ahead with a reasonable programme without the consent of the European Union; and that means trouble. The outlook is unpleasant. It must be hoped that the companies can preserve unity of purpose and action and will proceed to filling the uncontroversial "intermediate" jobs with Africans forthwith. It must also be hoped that all parties will realize that African advancement will come—somehow—whatever the nature of agreements now preventing it.

The Depletion of Malayan Tin Reserves

Mr. J. Ivan Spens, in his recent speech to shareholders of the London Tin Corporation (reported on page 461), stressed, as leaders in the tin industry have so often had occasion to do, the urgent need for more prospecting in Malaya if fresh reserves are to be located in time to keep the industry operating for much longer at anywhere near its present rate.

Considering that as long ago as 1939, it was being estimated that the Malayan industry as a whole had little more than 20 years reserves in sight, and that since then very little prospecting has been possible, it is remarkable that the industry has contrived to sustain a steady output for so long. The high tin prices of the post Korean period were, no doubt, a major factor in this, and more recently the prospect of international tin control and its attendant quota scheme has provided producers with every incentive to maximize their outputs, even at some loss, so as to establish as high an output record as possible prior to the application of the quota.

Presumably within another year we may expect to witness the first imposition of quotas, which on the basis of the present 20,000 tons per annum gap between world production and consumption would probably not mean a cut of more than 10 per cent to 15 per cent on present Malayan output. While on the one hand cuts of this order will have little effect on the rate at which reserves will be depleted, they will on the other tend to result, particularly among dredge operators with heavy fixed overheads, in so raising unit costs per ton as to render a considerable tonnage of marginal ground uneconomic at present prices.

This factor, added to the progressive depletion of known reserves and the inevitable trend towards higher costs at greater dredging depths, strongly reinforces the urgent need to catch up with the fifteen year backlog of prospecting. Aside from a short period just after the war, this has only again become possible within the last year or so, and even now only in those areas where terrorist activities have been brought under control.

However the end of banditry will not of itself solve the

problem for those mining companies which are now working on low profit margins. The high tin prices of recent years should have provided the opportunity for accumulating reserves out of which to finance the future prospecting and equipping of new mining areas which practically every company knew it would have to face, but in fact so much of the higher earnings went in inflated royalties and profits tax (not to mention E.P.L.) that the opportunity of setting these reserves aside was to a great extent lost. It was no doubt partly with these thoughts in mind that Mr. Spens observed in the course of his speech that "persistently low (tin) prices would be certain to influence policy in regard to the expansion of mining operations, especially when new plant or heavy expenditure in connection with the acquisition of new mining properties are involved."

It would be unjust not to recognize the quite exceptional circumstances under which the Malayan Government has been forced to operate since the war, and which have largely contributed to the oppressive tax climate in which the tin industry has found itself. At the same time tin mining is one of the Federation's two basic industries, and it may well be that the Government will soon be faced with the necessity of allowing special tax reliefs—either direct or indirect—to companies undertaking the prospecting and equipping of new mining areas. This work is vital if Malayan tin output is to be sustained for long at around 50,000 tons, which at present levels of consumption seems likely to be its allotted share of world production under the quota scheme.

Atomic Power For Australia

The use of atomic energy to produce power in Australia was the subject of a two-day symposium held recently at the New South Wales University of Technology, Sydney. More than 200 scientists and representatives of chemical and engineering industries attended the gathering.

The Universities which the scientists represent are responsible for much of the nuclear and atomic energy research being carried out in Australia, and so far have limited their research to the study of the atom nuclei. Indeed, the Australian National University, which has one of the most powerful particle accelerators in the world, is using it to bombard nuclei with high energy particles.

At the University of Sydney, Professor H. Messell and a team of scientists are using the cosmic ray particles which shower the earth to bombard nuclei. They are also studying the rays, and are preparing experiments aimed at discovering their origin and physical properties. At the New South Wales University of Technology scientists are working on technological problems allied to the use of atomic energy for power generation, especially in the field of metallurgy, and chemical and mechanical engineering.

Professor J. P. Baxter, Director of the New South Wales University of Technology and a member of the Australian Atomic Energy Commission, who is leading this research, returned to Australia recently from the U.K., where he and the head of the Commission, Major General J. E. S. Stevens, conferred with British atomic energy experts. Shortly after their return it was announced in Canberra that Australia had been guaranteed full technical information from Britain, Canada and the United States. This would make possible the eventual construction of a high-powered atomic reactor for industrial uses.

In a paper, *Atomic Power in Industry*, delivered at the symposium, Professor Baxter outlined some of the problems facing scientists in adapting this power to industry, and pointed out that the main consideration was the need for immense capital investment, and for trained scientists. He emphasized that in order to build a reactor of industrial size it was first necessary to create a chain of industrial

establishments to make special materials, and that after the reactor had been built, another line of industrial facilities was needed to process material from the reactor in order that it may be kept in operation. The capital investment in these auxiliary industries might be as great, or greater, than that of the reactor, and their development would present scientific and technical problems as difficult as those associated with the reactor.

Professor Baxter added another basic consideration was the economic one. At the present time power from atomic reactors could not compete economically with power produced from coal, oil or hydro-electric sources, so long as these are found near centres of industry. Yet ways already could be seen in which power reactors could be simplified and made cheaper, with capital costs reduced and reliability increased.

Another problem facing atom scientists in the application of atomic energy to industry is the disposal of radio-active waste products from the reactor, and in this connection Professor T. G. Hunter, Professor of Chemical Engineering, University of Sydney, told delegates that, by A.D. 2000, the world's atomic power plants would produce about three tons a day of highly radio-active fission products, probably in the form of liquid waste. This liquid would amount to about 6,000,000 gallons a day, and to dilute it to safe tolerances would require huge quantities of water.

"Obviously ocean dispersal of waste would be unsatisfactory," Professor Hunter said, "as the seas of the world would not be big enough to hold the radio-active waste. Therefore the best solution would be to absorb the waste in clays and convert the clay into glass, which could then be stored safely."

When Australia does convert to atomic power for her huge industries, she will have vast reserves of fuel in the form of uranium for her atomic reactors. An account of the distribution of uranium deposits in Australia was given by Dr. H. G. Raggett, Secretary of the Commonwealth of Australia Department of National Development, which has been given the job of surveying likely deposits throughout the continent. Dr. Raggett said that surveys so far carried out showed that there were 25,000 sq. miles of possible uranium territory in the Northern Territory alone.

Mexico

(From Our Own Correspondent)

Mexico City, September 23.

The campaign in the United States to increase import duties on lead and zinc by 130-200 per cent has caused such dismay in Mexican mining circles that it is scarcely to be wondered at that President Eisenhower's decision not to increase the import duties has been hailed as a "deliverance from a mortal blow." While the industry is heartened by alleviation of the imminent peril, mining leaders point out that the situation here "is far from being salvaged." Senator Benitez warned that the strategy of the Democrats has always been to woo North American producers of the metals in order to gain their political support. Moreover the industry here still has to face such serious problems as high production costs and low world market prices.

A formal demand has been made to the Secretary of the Treasury, asking that a general 50 per cent decrease in taxation be granted. This, it is held, would stimulate exploratory work and exploitation of mines now idle because of unprofitable operation. It is learned on good authority that the Secretary of the Treasury has given a favourable view to the proposal, qualifying this, how-

ever, by stating that the government cannot risk "a decrease in normal federal revenues by 50 per cent." Pressure, however, is being brought to bear to grant the full decrease. It is argued that Mexico's mining has been in steady decline for the past two years and this is directly attributable to lack of markets and investment capital.

Government taxation produced P.850,000,000 (\$98,850,000) in 1952 on a total production of P.1,020,000,000 (\$118,626,000), leaving a net of P.170,000,000 (\$19,760,000) after production, export and income taxes had been paid. Production in 1953 plummeted down to P.625,000,000 (\$72,690,000), with taxes amounting to P.575,000,000 (\$66,860,000) leaving a net profit of P.50,000,000 (\$5,810,000).

It should be noted that all net profits were still subject to other deductions for exploitation expenses, salaries, etc. This year's production may reach a new low figure and, if the trend continues, then Mexican miners face general ruin.

The National Bank of Foreign Commerce, in an analysis of basic markets for Mexican silver and zinc, reveals that these are the United States, Great Britain and Belgium. In 1950 the U.S. absorbed 97 per cent of Mexico's production; 43 per cent in 1951, and 48 per cent in 1952, rising to 63 per cent last year. Zinc exports in 1953 were valued at P.183,000,000 (\$21,278,900).

THE PROBLEMS ACKNOWLEDGED

A high official of the Mexican Mining Chamber, commenting on President Adolfo Ruiz Cortines's annual "State of the Nation" report, said that "we may expect a general improvement in the situation in the very near future." President Cortines had fully acknowledged the diversified problems of the local industry, and indicated that strong, remedial measures will be taken by the government in the near future. A measure is pending in Congress since last year, which would make it possible for any Mexican citizen to exploit natural resources.

Federal Deputy Filiberto Ruvalcaba, general secretary of the Miners' Union, has proposed that the government set up a Department of Mines and Petroleum, for the wide exploitation of these two rich national resources. Under his proposals, aside from protective legislation for small and large miners, special clauses would eliminate the "exploitation" of small operators. Also there would be a decree that all mines abandoned for five years would be reincorporated into national reserves. Further, heavy duties would be placed on impure metals (copper, lead, zinc, bismuth, etc.) refined outside of Mexico. Ruvalcaba proposed that a huge smelter be constructed in Mexico at a strategic point, to serve both small and large scale mining producers; as well as installation of small metallurgic plants for exploitation of low-grade ores. The Deputy also stressed the need for the establishment of a Mining Industry Bank to attend to the financial needs of miners, granting liberal credits; as well as a central office which would give full information to national investors interested in mining investments.

It should be mentioned, too, that Mexico has initiated formal preliminary studies in connection with its vast resources of coal and iron, with a tally of all deposits to be officially made, and the co-ordination of plans to utilize these reserves.

ISSUE NUMBERS — A CORRECTION

Through an unfortunate error the serial issue numbers for our issues dated October 8 and October 15 appeared as 6126 and 6127 respectively. These should have read as 6216 and 6217.

Improved Labour and Power Supply Eases Production Problems in South African Mines

Two factors which offer some relief to the production problems at present experienced in the South African gold mining industry are that African labourers now seem more inclined to make mining a permanent occupation and that the supply of power to the mines is improved following the installation of new generating plant. The following article, recently received from our South African correspondent, discusses these points and in addition emphasizes that in the distant future higher returns may be expected in certain areas owing to the fact that fines from reef blasts may only be recovered during clean up stope washing operations.

South African gold production increased still further during September, a development which was not unexpected. The value was helped by the higher gold price, but the main influence was the higher physical outputs of the new mines, plus the maiden declaration of Harmony, showing a profit of over £32,000. Virginia, which was officially opened in the latter part of the month, did not make any announcement, but this will appear in the October figures.

The most notable profit increases were President Steyn from £50,000 to £61,000; President Brand from £54,000 to £80,000; Western Holdings from £100,000 to £110,000; and St. Helena from £64,000 to £74,000.

In most cases these major profit jumps are due to increases in the grade milled, both in the Free State and Klerksdorp areas. It is worth recalling in this connection that the greater number of the new mines are still milling well below ore reserve grades through the crushing of development rock. This intake will gradually decline, so that in general it can be expected that average grades will show a steady rise for some considerable period of time to come.

The milling grade of the very rich ores existing in the Basal-Vaal reef system is being complicated by a further factor. In Western Holdings and in certain ore blocks in Ellaton, the reef is extremely friable, often being so soft that pieces can be broken up in the hand. This friability has resulted in considerable losses of reef during blasting operations, as appreciable quantities of blasted material are reduced to such a fine state that only stope washing after the stopes are worked out can effect recovery.

As a result drains are receiving increasing attention as in addition to their primary function they now tend to form part of the gold recovery process. Even after functioning with optimum efficiency, the drains will have accumulated enriched fines over the life of the mine, so that eventual clean-up operations in the distant future may produce much higher gold figures than has been the case in the past.

This phenomenon has led to increasing attention being paid to shaft sumps as these equipments are likely to become an integral part of the reduction process.

The African labour position in the mines has shown some seasonal falling off with the approach of the ploughing season, but it is still well above last year's figure. An interesting aspect of the situation is that the influx this year has been of Union-born Africans, the bulk of whom have had previous mining experience.

This suggests an interesting and encouraging factor. It would seem that there are a growing number of Africans

who are regarding mining as their permanent occupation, a view supported by the fact that the number of Africans who arrive at the mines with a volume of permanent possessions is growing.

From the practical side this development is increasing productivity as the general level of skill is rising, and it should gradually be reflected not only in physical output but in working costs.

Another encouraging feature is the improvement in the supply of power to the mines. Escom's new generating

plants are steadily being commissioned and preliminary work has already started on yet another major station. The progress made between the end of 1952 and April this year has been excellent, with new plant of an aggregate capacity of 230,500 kW being installed.

The voluntary rationing system is easing gradually, but it may be some time before it can be taken off completely.

Additional power supplies will undoubtedly have important beneficial effects in a number of ways on the mines.

There is, of course, the obvious one, of allowing reduction plants to work nearer their optimum capacity, which does not allow for increased revenue but means a reduction in costs per ton milled and will also permit the use of increased mechanization underground.

In the new mines, particularly in the Orange Free State, it is expected that development footages will be stepped up through the availability of increased pumping capacity. It is not generally realized that pumping facilities have been a limiting factor on a number of properties, the question not being so much that of dealing with water encountered in the ordinary way, as of the safety factor should heavy inflows be encountered.

The only cloud on the power supply horizon is the increase in charge which Escom can no longer avoid in spite of it being a non-profit making concern. This is the outcome of the higher costs of new plant, transmission lines and coal. In 1943, the cost of coal was 4s. 4d. a ton at the plants supplying the mining industry. By last year it had risen to 9s. 9d.

As regards plant and capital equipment, expenditure rose by £49,000,000, an increase of 86 per cent over December, 1950. The increase in total units sold—which can be taken as the increase in production—was 26 per cent. From this it can be seen that revenue must be stepped up to cover interest and redemption charges. In 1952, the average price per unit supplied was 0.3883d., which was increased to 0.4273d. As yet, it has not been announced what the new price will be, but it will probably be towards 0.5d.



The St. Helena reduction plant

Eye Protection in Quebec Metalliferous Mines

In *The Mining Journal* of March 6, 1953, an article discussing eye protection for underground workers at the Jeffrey Mine of Canadian Johns-Manville showed that the majority of eye injuries suffered by miners could be eliminated by the wearing of safety spectacles despite the obvious disadvantages offered to this type of protective equipment by mine conditions. The following article, a condensation of two papers presented at the twenty-fourth annual meeting of the Mines Accident Prevention Association of Ontario, 1954, describes the methods used in instituting an eye protection programme on mines affiliated to the Quebec Metal Mines Accident Prevention Association. The adoption of protective goggles of suitable type is a matter of selection based on experimentation under practical working conditions, and the three salient points which determine the practicability of underground goggles are wearer comfort and appearance, protective efficiency, and the complete reduction of any tendency towards lens fogging.

The practicability of eye protection as a means of further ensuring the safety of underground workers is only now being conclusively proved. Previously it was felt that this type of protection could not be generally adopted in a mine owing to the nature of the work where such conditions as dust, humidity, dripping water and lack of cleansing facilities, might result in decreased or distorted vision.

It has now been shown that these arguments are fallacious, and that certain types of goggle can be worn by miners with comfort and that their value in reducing eye injuries is becoming increasingly apparent. This opinion is well supported by statistics, as shown in the following table.

1950-1951 (Before Goggles)		1952-1953 (Since Goggles)	
Complete Accidents	9	Complete Accidents	0
Lost Time Accidents	24	Lost Time Accidents	2

These statistics related to 12 mines employing a complement of 2,600 miners, and were quoted by G. G. Mabec, assistant director of safety, Quebec Metal Mines Accident Prevention Association, in the paper presented by J. W. Waugh at the twenty-fourth annual meeting of the Mines Accident Prevention Association of Ontario.

INSTITUTION OF PROGRAMMES

Almost without exception, goggles were introduced in these mines by a publicity campaign and thereafter were issued to senior and junior supervisors. The final step was the issue of protective goggles to all personnel. As a result, the employees of ten mines wear their goggles throughout the entire underground shift—from collar to collar—while in two mines the goggles are only worn while actually at work. Three mines require employees to wear goggles only while employed on tasks requiring eye protection.

The following goggles are now being used in order of quantity: Willson WV-2 and WV-5, American Optical AO-3100, American Optical F-9200, Willson B-4, and American Optical FX-9200. All these goggles are available with side shields when this additional construction is considered necessary.

It is obvious from a comparison of available data that eye protection for underground workers is necessary and that it is practical. If success is to be achieved, however, the following matters must be early considered.

- Type of goggle to suit underground conditions;
- Type of goggle which gives greatest comfort combined with adequate protection;
- Method of fitting and issuing goggles;
- Distribution of cost and maintenance;
- Type of programme, its institution and follow-up.

Because of the hard manual nature of underground work, cup type goggles are not practical. These fog badly and in addition the frames reduce vision to a great extent, while the elastic headband does not lend itself to comfort over long periods. Face shields are too cumbersome and likewise require some type of head harness.

The choice of a spectacle is one of the most important points for consideration. Proper fitting is not only essential

to wearer's comfort—in turn essential to efficient workmanship—but is also instrumental in preventing the fogging of lenses so prevalent underground. Nor must the psychological aspect be disregarded, as miners have been known to secrete safety glasses in a pocket owing to lack of confidence in their personal appearance when wearing them.

The differences in personal facial structure become pronounced when glasses are being fitted, and thus a standard frame is an impossibility. Therefore as much sizing as possible is required. Because of these considerations the choice of safety spectacles used in the mines concerned is as follows:

- Safety Supply or Willson type AV, namely metal frame spectacles with "Hi-line" temples and rocker type nose pads;
- American Optical AO-3100 metal frame with rocker nose pads or plastic FX-9200 frames.

The glasses meet the requirements of lightness and pleasing appearance, provide adequate protection and increased side vision, while the rocker nose pads ensure adequate fitting. These rocker frames range in five sizes, 21, 22, 23, 24 and 25 mm., and by bending can be adjusted to many combinations of shape.

EYE PROTECTION AT MALARTIC GOLD FIELDS

The psychological problems associated with an eye protection programme for underground workers were emphasized by the late J. W. Waugh, at the time of the meeting mine superintendent, Malartic Gold Fields Ltd. Prior to the use of standard safety glasses on this property the helmets worn by underground personnel had been equipped with goggles of the hinged plastic type. These proved inadequate and hard to maintain, and in May 1951, safety glasses of various types were issued to all mine supervisors and all other staff members who travelled underground. These spectacles were worn from collar to collar.

The reasons for introducing the eye protection programme in this way were threefold. First, the possible force of contrary arguments by employees was reduced; second, the conditions under which spectacles could be worn were speedily established; and third, men at official level became convinced of the practicability of the programme. Malartic Gold Fields was one of the twelve properties covered in the report compiled by G. G. Mabec.

OTHER STATISTICS

In the discussion following the presentation of these two papers A. F. Heather, mine superintendent, Madsen Red Lake Gold Mines Ltd., pointed out that a complete goggle campaign was inaugurated at the Campbell mine in May, 1953. A comparison of the results achieved showed that during the first six months of 1953 a total of 15 eye injuries were reported with one compensable. In the last six-month period seven injuries were reported with one compensable and to September, 1954, no compensable eye injury had been reported. It is interesting that at the Campbell mine rags impregnated with anti-fogging solution are distributed to workers for lens cleaning.

Inspection and Testing of Electrical Equipment for Use in Mines

The effective safeguarding of electrical equipment for underground use depends on the application of two of the practices followed in safeguarding mines against general hazards, namely ventilation and rock dusting. The exclusive use of permissible equipment is of almost equal importance, however, and in the following article by L. C. Ilsley, E. J. Gleim and H. B. Brunot, of the U.S. Bureau of Mines, the methods used in testing electrical equipment for use in gassy mines of the United States are described. The article is the condensation of U.S. Bureau of Mines Information Circular 7689, and although it relates particularly to those conditions existing in carboniferous mines, the recent trend to install such equipments as belt conveyors in metal mines give the methods discussed an added interest.

The basic conditions that bring about a mine explosion initiated by electrical equipment improperly constructed or poorly maintained are presence of gas in the immediate vicinity of the equipment, penetration of the gas into the equipment by diffusion or other means, ignition of the gas in the equipment by an electric spark or flash, and failure of the equipment to prevent the spread of the flame resulting from that ignition.

FACTORS BEARING ON SAFETY

The degree of hazard in introducing a piece of electrical machinery into a gassy mine and the possible results of an explosion within the machine vary with the following factors:

- (a) Percentage of gas in the atmosphere inside of and surrounding the machine;
- (b) Amount, conditions, and distribution of coal dust (bituminous) in the mine;
- (c) Degree of turbulence of the gas within the machine;
- (d) Arrangement and size of spaces that may become filled with an explosive atmosphere inside the machine;
- (e) Protection of sparking parts or parts that may give off sparks by an enclosure so that gas does not easily reach them;
- (f) Ability of the enclosure to withstand internal explosions of gas and prevent propagation of flame through joints, bearings, or cable entrances.

If an explosion takes place in open-type equipment, the mixture surrounding it, if explosive, can reasonably be expected to ignite. Such an explosion in an anthracite mine would proceed only as far as the flammable mixture extended, but in a bituminous-coal mine, owing to the explosibility of coal dust, it might continue throughout the mine. Good mechanical construction of electrical equipment is therefore necessary. If an explosion takes place in apparatus too weak in mechanical construction, walls will be distorted or destroyed, bolts will be sheared, seams and joints will be opened, and the explosion may spread to the outside. Small openings that have been overlooked by the designer, maker, or user are thus a source of possible hazard in enclosed motors and other electrical accessories. These openings may be around lead wires or at bearings, or they may result from the omission of bolts or cap screws in holes tapped through the enclosure.

Ordinarily, the only gas that occurs in coal mines in quantities sufficient to cause an explosion is methane (CH_4). So far as the flammability limits of methane are concerned, continued propagation of flame in mixtures of air and methane that contain less than approximately five per cent methane is impossible, whether the mixtures be quiescent or turbulent. When such mixtures contain more than about 15 per cent methane, continued propagation of flame again becomes impossible.

Methane is ignited in air at about 650 deg. C. To obtain

ignition, enough of the flammable mixture must be maintained at or above its ignition temperature for a long enough period. Consequently, small electric or friction sparks may fail to ignite methane, and even large flames of momentary duration may not ignite it. In general, however, the temperature of a strong electric spark or flash so far exceeds the ignition temperature that its duration insures an explosion in an explosive mixture. The explosion will be most violent when the explosive mixture in the enclosure contains between eight and ten per cent methane but will not necessarily be most liable to result in an exterior explosion, as experiments have demonstrated that lower percentage of gas will cause flames to pass more easily through holes of gauze-protected pressure-relief openings.

The arrangement of parts within a machine may have a marked effect upon the pressure developed by an explosion of gas inside. When an explosion begins at one end of a long closed passage, the pressure precedes the flame, and in this way the gas is compressed before being ignited. Consequently, as the flame advances into the compressed gases the explosion pressure increases. Similarly, when two or more compartments are connected this "pressure piling" may become dangerous, especially if the ignition starts in a large compartment connected by a narrow passage to a small compartment. Isolated compartments or an arrangement of parts that will not result in excessive pressure should therefore be followed in the design of permissible-type equipment.

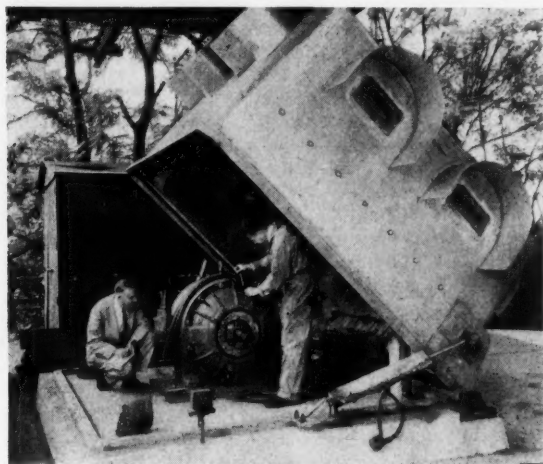
Coal dust may be present in the gassy mixture as a dust cloud whose density is a variable quantity difficult to measure or duplicate under ordinary testing conditions; or the dust may be in the form of a deposit, various amounts of which may be stirred up by the force of an explosion. Some of these coal particles are distilled, some are decomposed and enter into the combustion, and some are driven out through openings in an incandescent state.

Coal dust appears, in general, to lower the explosion pressure if the most explosive mixture of gas and air is used and to increase the pressure to a less marked extent if lower percentages of gas are used. However, there are so many exceptions that the effect of the coal dust in any particular case cannot be predicted.

CONSTRUCTING PERMISSIBLE-TYPE EQUIPMENT

From the foregoing consideration of the characteristics of methane, it can be seen that the main problem confronting the manufacturers of mine electrical equipment is to construct enclosures so that joints (and relief openings of protective devices) will abstract enough heat from any flames tending to escape to cool them below the ignition temperature of methane, 650 deg. C., and so that the enclosures will be strong enough not to burst when gas explodes in them. Flames may be cooled by contact with metallic surfaces at joints or discharge openings of protective devices through which they pass, from sudden expansion of the gases as they are released from the enclosure,

or from both contact and expansion. In fact, while one or the other of the above conditions may predominate, some cooling from contact and some from expansion always will take place, as the flames must come in contact with the sides of the openings through which they escape, and as the products of combustion reach the surrounding atmosphere they will expand after being forced out under pressure of the internal explosion.



The explosion gallery

The U.S. Bureau of Mines places great emphasis on thorough inspection of all electrical accessories, such as motors, rheostats, controllers, headlamps, etc. The object of the inspection is to compare the apparatus with the manufacturer's dimensional drawings to ascertain if the design specified is the same as that of the sample accessories tested and inspected by the Bureau, and to become more familiar with the construction and assembly of the parts and discover unsafe conditions that might be overlooked if drawings only were consulted. To make such an inspection the apparatus must be completely disassembled, and this is done in a large laboratory convenient to the testing gallery.

The most satisfactory method of proving a computed factor of safety is to subject the theoretical to a practical demonstration. Likewise, the most satisfactory proof of the safety of an explosion-proof electrical accessory is to subject it to the adverse stresses and strains that occur when an explosive mixture that fills the compartment is ignited. The weakness of a compartment is not always evident from an inspection although an experienced investigator often can foresee it. Tests in explosive mixtures are also of value in that they frequently reveal unforeseen deficiencies.

FACILITIES FOR TESTING

One of the serious problems in large-scale tests of electrical equipment for permissibility is to provide enough gas suitable for producing the explosive mixtures. The Bureau is particularly fortunate in having available an ample supply of natural gas taken from the Pittsburgh supply mains. Although the composition varies from time to time, a typical analysis is 82 per cent methane, 16.4 per cent ethane, 1.5 per cent nitrogen, and a trace of carbon dioxide. The methane content usually exceeds 80 per cent. The results of recent test show that natural gas is somewhat more inflammable than methane.

A testing gallery was given to the Bureau by

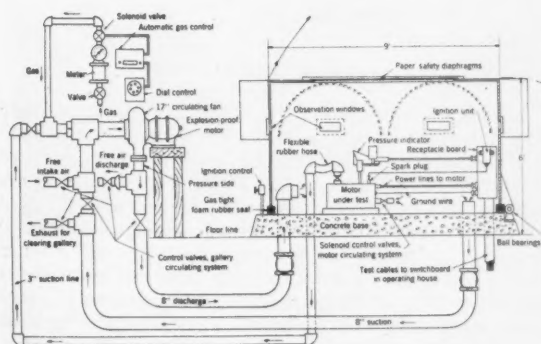
several mining equipment manufacturers, and consists of an explosion chamber in which the mine equipment is tested, a fan and piping system for mixing and circulating the explosive mixture in the explosion chamber and in the equipment under test, a switchboard on which are mounted the electrical controlling apparatus and wiring for directing the action of the gallery, a crane surmounting the gallery and equipped with a 3-ton electric hoist, and other miscellaneous apparatus. This testing gallery was described briefly in *The Mining Journal* of April 13, 1953.

The explosion chamber consists of an aluminium shell with a 9 ft. by 10 ft. rectangular cross section and a height of 5 ft. The lower edge of this shell has a rubber gasket and rests on an aluminium frame on the concrete base. The chamber can be opened to allow testing engineers to enter and make necessary changes in connections, replace pressure indicator cards, and examine the equipment under test, and two hydraulic jacks rotate the chamber about two bearings on one lower edge of the shell.

For quick release of pressure when the mixture in the chamber explodes, two openings covered with waxed-paper heads or diaphragms are provided through the top of the chamber. These paper heads, which are 72 in. by 39 in. rectangles, are each clamped in position by a metal frame, and the diaphragms are made of black paper to exclude light from above. Eight windows with safety glass $\frac{1}{2}$ in. thick are spaced two on each side around the chamber and permit testing engineers and witnesses to observe the results of each test. Sparks and flames issuing from joints, bearings, or other openings of the part under test can be seen more readily if the interior of the chamber is darkened. Two tests are generally made with each mixture of explosive gas prepared in the testing chamber. The gas is then cleared from the chamber, and the chamber is opened to allow the engineers to enter.

TEST PROCEDURE

Equipment is prepared for test in the main laboratory. The preparations are not complicated and consist mainly of drilling and tapping two sets of holes in the part to be tested. One set of these holes serves as pipe connections to admit gas to the interior. When feasible, these holes are drilled and tapped for $1\frac{1}{2}$ in. standard pipe. These gassing holes, usually two in number, are placed so as to obtain



Diagrammatic illustration of the gallery

the longest path between the point of entrance and the point of exit for gas circulated through the compartment. The second set of holes is used to attach a recording pressure-indicator and to insert spark plugs. These holes are drilled and tapped with $\frac{1}{2}$ in. standard right-hand pipe

thread and are used for both spark plugs and the pressure gauge.

After drilling and tapping and again assembling the equipment, the parts are mounted in the testing chamber. Valves and piping are then attached for circulating the gas-air mixture through the equipment. The recording pressure indicator is then connected at one of the $\frac{1}{4}$ in. holes, and spark plugs are inserted in the remaining $\frac{1}{4}$ in. holes.

THE TEST CYCLE

The cycle of tests is that the equipment is placed in the testing gallery and is piped to the gas-circulating system so that any or all compartments can be filled with a mixture of gas and air under atmospheric pressure. Spark plugs are installed at different points, so that the point of ignition will be under the operator's control. A pressure indicator is connected at different points to record the pressure developed by the explosion in the compartment under test. In tests to determine the effect of the pressure of coal dust in the atmosphere, the dust is usually forced through the $\frac{1}{4}$ in. holes by a hand bellows into the inside of the compartments.

When the spark plugs and pressure indicator have been connected at the desired points, the testing gallery is closed, and an explosive mixture of gas and air is made by adding the proper quantity of gas and thoroughly mixing it with the air under atmospheric pressure. The number of cu. ft. of gas admitted to the gallery to produce explosive mixtures is known from calibration. The proportion of gas generally used in the tests is 8.6 and 7 per cent, both with and without coal dust. The explosive mixture is then drawn into the compartment or compartments under test, and the compartment is isolated from the piping and testing chamber by closing the solenoid valves.

The mixture within the compartment is ignited with one of the spark plugs, observation are recorded, and a second test is generally made with the same gas mixture and under the same conditions before the gallery is cleared of gas by the circulating system, and the gallery is opened.

If the equipment is to meet the test requirements satisfactorily, the gas mixture surrounding the equipment must not ignite, flames must not be discharged from any point, there must be no prolonged afterburning, and excessive pressure must not develop in any of the compartments. No permanent distortion must be caused by the pressure. The schedule requires that at least 10 tests be made.

ADEQUACY OF EQUIPMENT

During recent years the U.S. Bureau of Mines has been paying particular attention to the adequacy of fuses, circuit breakers and other protective devices. These are intended to protect the machine and its wiring, and if they do not perform their functions properly the equipment is regarded as faulty. It is therefore desirable, wherever possible, to test such devices for the maximum load they will meet in service and under conditions as near those met in service as laboratory test conditions permit. Mine equipment is probably more susceptible to these faults than any other class of machinery, owing to crowding of parts in the effort to make the equipment as small and compact as possible.

The importance of the foregoing remarks with regard to electrical equipment utilized in metalliferous mines, is that the severity of the tests applied for coal mining electrical units ensure an even wider margin of safety in a metal mining application, and that these tests are of general interest owing to the gradual increase in the use in metal mines of such equipments as conveyor belts.

Revived Demand for Strategic Minerals in Brazil

The U.S. Government is again displaying interest in Brazil's strategic minerals and other metals, and the Department of Agriculture is supplying 100,000 tons of surplus wheat, to be paid for in thorium and other metals of an equivalent value, according to a recent report from our correspondent.

The Senate Sub-committee on Economic Minerals is to visit Brazil and other Latin American countries to investigate possible sources of mineral supplies. After revising U.S. imports of strategic minerals, the Sub-committee suggested that Latin America should be able to increase output sufficiently to make the United States independent of supplies from the more distant sources which were liable to be interrupted in cases of emergency. The Sub-committee predicted that Brazil will replace India and Africa as a supplier of manganese as soon as her abundant reserves are fully exploited. Large-scale shipments by Bethlehem Steel from Amapa will begin in 1956.

A recent study published by the United States Department of Mines pointed out that Brazil is one of the principal suppliers of zirconium and hafnium.

Zirconium occurs in Brazil in the form of zircon (ZrSiO_4), in deposits of zirconite sands on the coast, or at Poços de Caldas as baddeleyite (ZrO_2), or caldesite, a complex mixture of zirconium silicate and zirconium oxide (see *The Mining Journal*, May 22, 1953).

Interest in the Poços de Caldas deposits has increased considerably of late as a result of the discovery that these zirconiferous ores contain a high percentage of uranium and are really zirconium-uraniferous minerals. Experiments for chemical treatment and separation of the uranium are well advanced and the Research Council is about to begin installing plants for the purpose.

The discovery of a deposit of uraninite in the Municipality of Ico, State of Ceara, believed to be the first in South America, was announced in September. Representatives of the Department of Mineral Production who were sent to investigate, reported that the ore contains 60 per cent of pure uranium.

EXPORT CONTROL

There is a growing tendency in Brazil to restrict exports of crude minerals and increase industrialization locally for home consumption and exportation. A commission was recently appointed to control sales abroad of strategic minerals. Certain of these can now only be exported in limited quantities, or directly to friendly governments.

Dr. Othon Leonardos, writing in *Engenharia, Mineração e Metalurgia*, gives a comprehensive list of Brazilian minerals, divided in categories, namely those which might be freely exported, those which should be beneficiated or industrialized locally before exportation, and those for which exports should be prohibited. The first category includes iron ore, manganese, magnesite, barytes, quartz, mica, diamonds and semi-precious stones, zircon scheelite and bauxite, all of which abound in Brazil. The second category includes minerals, relatively abundant in Brazil, but scarce in other countries and which can, therefore, be advantageously processed locally for exportation. These minerals are metallic beryll and beryllium oxide, rare earths, nickel and garnierite, columbite, tantalite, baddeleyite, ferro-manganese, ilmenite, rutile and amblygonite. The third category comprises metallurgical coal, pyrites and sulphur, chrysotile, copper, zinc, lead, silver, bismuth, antimony and potassium salts, of which the known reserves are insufficient for local needs.

MACHINERY AND EQUIPMENT

Tracto-Shovels Reduce Crusher Movement

By using two Allis-Chalmers model H.D.9G tracto-shovels to load a mobile crushing plant, the number of times the crusher has to be moved is greatly reduced. This is the experience of a contractor in the United States who supplies crushed limestone for road making. By placing the crusher in the middle of the working area the H.D.9G's can load and carry the limestone from a wide radius. When the rock was loaded by an excavator



The two H.D.9G's loading the mobile crushing plant

the crusher had to be moved several times a week, a practice which involved a great deal of down time which is thus avoided by the use of the tracto-shovels. The two H.D.9G's easily keep the plant at its maximum output of 135 eight-ton truck loads per nine hour shift.

The H.D.9G is the third largest in the Allis-Chalmers range of tracto-shovels. It is fitted with a $2\frac{1}{2}$ cu. yd. heaped capacity bucket and has a discharge height of 9 ft. 1 in. Fitted with the alternative rock bucket, this machine is widely used in quarries in the United States. Its arrival in this country was reported in our issue of October 1, 1954.

Tropicalized Caravans Replace Tents

Four special tropicalized caravans have been ordered by the Anglo-Iranian Oil Company for the use of a geophysical gravity survey party in Tanganyika. The caravans, supplied by Pilgrim Mobile Units Limited, will be delivered in the next few weeks.

This order follows the successful use by the company's geologists, engaged on oil survey work with Shell representatives in East Africa, of three of these caravans, instead of the tentage previously used. It gives the company a fleet of seven of the caravans in that territory. The units, which will serve as mobile homes and offices, are designed to meet conditions both of climate and terrain in semi-tropical countries.

All the caravans are insulated against extremes of temperature so that the interior is cool by day and warm at night. Proofed against flies, dust and termites, their fittings include a refrigerator, two bed settees, a chest of drawers, a collapsible table and fold-away drawing and map board, two wardrobes, storage cupboard and lockers, and a toilet.

The units are nearly 17 ft. long by 7 ft. wide, and the kitchen, separated from the main saloon by a sliding door, contains an oil cooker, a sink-unit fitted with a plunger pump, crockery and food storage cupboards. Water is laid on by means of a 15-gall. tank and the vans are wired to allow for either 12 v. or mains electricity supply to be used for lighting.

It will be recalled that from time to time in recent years *The Mining Journal* has urged the employment of caravans for the housing and transportation of prospecting and survey parties, as well as mine development crews.

Intermediate Section for Gate Belt Conveyors

An advanced design of intermediate section for gate belt conveyors, designated the G-type Structure, is announced by the manufacturers, British Jeffrey Diamond Ltd.

The G-Type Structure is of simple design for easy servicing, and each length of 9 ft., for 26 in., 30 in., 36 in. and 42 in. belts, consists of two nests of idlers mounted on steel angle sections with cover plates and a bottom roller below. The Structure can readily be built up or dismantled, and the labyrinth of the idlers effectively seal in the grease for the greater part of the idler roller's life although grease nipples can be supplied if required.

Features of the Structure are that the 4 in. diameter top rollers are built as a three-roller nest with the centre roller receiving the belt first and the side rollers lagging, and that the 4 in. diameter bottom roller is adjustable to assist in training the bottom belt. Other facets are that all rollers are pressure grease packed, the width of section for the return belt is $4\frac{1}{2}$ in. greater than the width of the belt, a fully covered bottom belt is ensured by means of bolted cover plates and that the rigid structure is capable of being slung.

A Range of British-Built Dragline Excavators

Originally designed and built in the United States, the Lima 1201 dragline excavator range is now being manufactured by the North British Locomotive Co. Ltd. The machine illustrated has an 80 ft. boom and a $3\frac{1}{2}$ cu. yd. Hendrix dragline bucket, and is one of the first three units to be built in the U.K., all of which were delivered to Sir Robert McAlpine and Sons Ltd. Construction is undertaken for the Jack Olding Organization and it is well known that the Lima 1201 has played a large part in the open cast coal mining programme carried out in Great Britain.

The Lima 1201 is powered by a Crosley four-cylinder, two-cycle single acting diesel engine incorporating the port controlled



One of the first three Lima 1201 units to be constructed

loop scavenge system, developing 240 b.h.p. The speed range is from 400 to 875 r.p.m. and a maximum torque of 1,520 lb./ft. is developed at 600 r.p.m. The 1201 is available with dragline, face shovel or crane front and equipment.

A Portable Air Compressor

In our issue of October 15, 1954, a note in these columns described the ACD 210 portable air compressor manufactured by The Lead Wool Co. Ltd. It was stated at that time that the volumetric efficiency of the machine is 8.3 per cent. This should, of course, have been 83 per cent.

METALS, MINERALS AND ALLOYS

COPPER.—It was suggested in this column last week that, with the strike in Montana and at Garfield over, the way was open for the release of copper in the hands of the American Government. This release was announced last week. The Director of Defense Mobilization authorized the General Services Administration to sell, at the market price of 30 cents, plus handling charges, 17,500 tons of copper held under Defense Production Act contracts. Establishments which could receive the copper, and the type and tonnage which they could have, were to be certified by the Department of Commerce. In addition, G.S.A. was authorized to defer acceptance of 9,000 tons of copper scheduled for delivery in October providing that the suppliers agreed to pass the metal to American consumers and that a comparable tonnage should be delivered by June 30, 1955, to the stockpile. (It has been pointed out that, whereas deferring stockpile deliveries does not require Presidential approval, releasing metal from the strategic stockpile does. Metal held in D.P.A. inventories may, on the other hand, be moved without Presidential approval. Hence the two types of releases.)

In addition, the Director asked the Secretary of Commerce to control export licences of copper "so long as necessary to prevent undue diversion of limited domestic supplies to foreign countries." It is not yet known how far this will effect United Kingdom contracts. Following the announcement, prices of copper scrap and of metal delivered outside normal contracts tended to fall. No. 2 scrap is down to 26 cents. But the shortage will not easily be overcome and, with consumers working from hand to mouth anxious to replenish their stocks and themselves feeling a keen demand, especially from the motor car industry, supplies will probably remain tight well into 1955.

The other development—about which all too little is being heard—is the attempt of the Chilean Government to push the American price up to 35 cents. As yet, no reply has been received—or, if received, has not been released—to the Chilean letter to the State Department on the matter. Nor is it clear where the American-owned Chilean companies stand on this issue, although the Chilean Minister of Mines has stated that he has had discussions with the Braden Company. "At 35 cents," says the *American Metal Market*, "the profits earned by some, perhaps many, of the world's copper producers would be fantastic." It is to be hoped that, as the American producers have adhered to 30 cents in the last few weeks, they will persuade Chile to hold that level in the coming weeks. There is no objection to Chile following the market up providing she also follows it down. But it is much more likely that, if Chilean metal goes to 35 cents, the market will quickly fall, Chile will withhold supplies, stocks will build up and the American Administration will be asked to do another big-brother rescue act. Such antics do not help any section of the copper industry in the long run.

The Chilean Government is reported to have objected to the release of copper from American Government stocks for commercial use. Since the stockpile lifted 100,000 tons of unsold—and at the time virtually unsaleable—Chilean copper, criticism from this source is perhaps unkind. Nevertheless, it is extremely disturbing to watch the development, under pressure of events, of American stockpile policy since stockpiling began to acquire other than purely strategic objectives.

Meanwhile, September copper statistics show how far copper stocks had fallen during the recent troubles. American production of refined copper in September was only 87,623 tons compared with 103,901 tons in August: domestic deliveries reached 88,947 tons compared with 92,475 tons in August: stocks of refined copper fell to 47,666 tons, the lowest level for four years. By contrast, refined copper production outside America rose in September from 100,437 to 107,489 tons: world stocks were put at 172,048 tons compared with 172,326 tons in August and 236,336 tons in September, 1953.

LEAD.—Lead demand has been steady to good with some consumer buying being almost brisk. A good impression was created by the receipt of acceptance from G.S.A. of metal offered at 15 cents after the earlier hesitation. It is believed that offers accepted will amount to the usual quantity of about 9,000 tons. An appreciably stronger foreign demand for lead has helped to

keep the price firm. Towards the end of the week, however, demand slackened appreciably.

TIN.—Demand for tin in the United States has continued moderately steady with market dealings devoid of any notable feature. American Tin consumption during the first eight months of 1954 was 37,260 tons compared with 38,164 tons in the same period 1953; it is estimated that consumption over the year will match that of 1953. Tin consumption in August at 7,000 tons was 11 per cent up on July and stocks (excluding strategic stocks) advanced in the month from 36,000 to 41,000 tons.

ZINC.—Acceptance of zinc offers, estimated at about 15,000 tons at 11½ cents, was also notified by G.S.A. last week. Zinc demand was much better than of late with die-casters and galvanizers wanting useful quantities. Demand for galvanized sheets for the enormous construction programme that is now under way in the United States should be more than satisfactory. More money will be spent on construction in 1954 than in any other previous year and the boom appears to be fairly evenly spread over all branches of the construction industry (with the possible exception of industrial building).

Towards the end of the week demand fell away. U.S. slab zinc consumption in August totalled 73,529 tons compared with 63,314 for July.

ASBESTOS.—According to the Philadelphia organ, *Asbestos*, the general position appears to be on the mend. Overseas fibre shipments are currently running at better than the average yearly rate and it is expected that this will continue until some time in the late autumn. Shorts are in good demand by the major consuming industries but there has been no appreciable expansion in demand for other fibre from domestic sources.

CHROME.—Some easement in India's domestic supply position has lead the Government to remove restrictions on export, although all shipments will still be subject to licence which will however be freely given.

Meanwhile, exports from Rhodesia are still being seriously handicapped by the railway bottleneck. Although in recent months about 50,000 tons of ore per month have been available for export, on average not more than about 22,000 tons have been moved.

Although previous negotiations between Turkey and the United States for the sale of Turkish chromium ore proved abortive owing to the high price demanded by Turkey, it is now reported that negotiations are at present in progress in Ankara by which some 200,000 tons of Turkish chromium ore may be delivered to the U.S. under a triangular deal between Turkey, the U.S. and West Germany. The arrangement in prospect is that the value of the Turkish chrome deliveries would be credited to Turkey's account under the West German-Turkish clearing arrangement. In exchange, the U.S. would deliver grains and fats to West Germany.

LITHIUM.—Lithium, the lightest of the known metallic elements, will soon be produced in Canada where work is now in progress some 25 miles north-west of Val d'Or in Abitibi, to bring into production a vast underground deposit of spodumene, one of the three main sources of lithium. All concentrates produced in Abitibi are to be shipped to a \$7,000,000 refinery now under construction by Lithium Corporation of America at Bessemer City, North Carolina, and at its other plant at St. Louis, Minnesota.

QUICKSILVER.—Although U.S. production of mercury in the second quarter of this year again advanced and imports continued at near record levels, industrial inventories were further reduced in the April-June period, according to a report issued by the U.S. Bureau of Mines.

During the first eight months of 1954, Italy's exports of quicksilver at 1,675 tons achieved a new record and compares with the exports in the corresponding period last year of only 834 tons. The greater part of the shipments during the period

January-August, 1954, went to the U.S.A. Increasing quantities of Spanish quicksilver are also likely to be offered on world markets in the months ahead. Small quantities from Spanish sources have already been offered and the quantities are expected to increase by the end of this month. It is believed that the sole Spanish producer, Minas de Almaden, is giving preference to its old clients and shipments are currently under way, to France and Brazil.

The explanation for Spain's appearance in the market is attributed to the surmounting of previous difficulties with Almaden's new American distillation plant, which kept production down to the former level of about 3,000 flasks per month and drastically curtailed exports—including shipments to the U.S.—in the first quarter of this year.

TUNGSTEN.—According to Ankara Radio, wolfram ore deposits are reported to have been found in the neighbourhood of Uluda in Turkey. The message states that Canadian geologists, who were investigating the deposits, believe they may prove to be the richest in the world. Several foreign companies are reported to have already applied for mining leases.

VANADIUM.—The Vanadium Corporation of America have recently increased their milling capacity on the Colorado plateau by the addition of a roaster at their Durango plant, which will have the effect of increasing its capacity by around 25 per cent.

Iron and Steel

British steel makers are racing ahead in an attempt to exceed all past production records, and they have every incentive to do so. In some branches of the trade demand far exceeds the present capacity of the works and continues to expand at such a rate that supplementary tonnages of imported material are required. A flood of orders for flat steel products in the form of plates, sheets, strip and tin plate, has made it necessary to purchase considerable tonnages—principally from U.S.A.

Until quite recently American steel has been operating at about 30 per cent below capacity, and although the position over there is improving supplies are still available from that source at a price which considerably exceeds recognized values in this country. European export prices are also suffering and for many classes of steel British makers are now able to command a premium on exports.

The activity in the building trade has given a big impetus to the call for girders and heavy sections and although production in the first half of this year exceeded that of the corresponding period of 1953 there is still a shortage which has prompted efforts to expand rolling mill capacity still further.

Demand for wire rods has also risen sharply and bar rollers who are now plentifully supplied with orders are finding it difficult to cover their increased billet requirements. For all descriptions of steel, delivery dates are extending—in some cases as far as 16 to 18 weeks ahead, and makers are becoming extremely cautious about adding to their commitments.

Expansion of pig iron production is proving difficult of attainment at present and steel makers are consequently using more scrap. Thanks to a steady flow of home bought scrap it has not been necessary to make heavy encroachments on the reserve stocks which were built up during the summer months, and the arrival of another big cargo of American scrap has compensated to some extent for the marked shrinkage in the imports from Western Europe.

The London Metal Market

(From Our Metal Exchange Correspondent)

The tin market is most uninteresting, and prices have been drifting slowly downwards. The appearance of a small contango emphasizes the comfortable stock position to which we referred last week. Consumption here is fairly well maintained, but in America demand is slow. Shipments from the Straits in September were the highest since March, but nevertheless the world statistical position so far as concerns surplus supplies seems to be improving, and this is due principally to the American stockpile policy. On Thursday morning the Eastern price was equivalent to £739½ per ton c.i.f. Europe.

It was announced this week that 17,500 tons of copper will be released from the stockpile for sale to needy U.S. consumers at the market price, and that in addition 9,000 tons due for delivery to the stockpile in October will be diverted but that this will have to be replaced by June 30, 1955. Meanwhile the supply position here is still rather tight and the dock strike does not help matters, as because of it some cargoes due for discharge here have gone on to the Continent and will be discharged there. Rather less interest is being shown by Continental buyers, and the London market for Standard copper has become somewhat erratic.

Lead for prompt delivery has been in demand, and quite good premiums over the current month's price have been paid for lead unaffected by the dock strike.

The zinc market remains rather dull, and prices have been easing off daily up to the time of writing.

Closing prices and turnovers are given in the following table:—

	October 14		October 21	
	Buyers	Sellers	Buyers	Sellers
Tin				
Cash	£733	£734	£732	£732½
Three months	£733	£734	£731	£732
Settlement				£732½
Week's turnover	320 tons		335 tons	
Lead				
Current month	£111	£111½	£107	£108
Three months	£103½	£104	£102½	£102½
Week's turnover	2,900 tons		3,150 tons	
Zinc				
Current month	£83½	£83½	£82½	£83
Three months	£83½	£83½	£82	£82½
Week's turnover	2,950 tons		4,250 tons	
Copper				
Cash	£275	£276	£267½	£269
Three months	£260	£261	£255½	£256
Settlement		£276		£269
Week's turnover	5,450 tons		5,600 tons	

OTHER LONDON PRICES — OCTOBER 21

ANTIMONY

English (99%) delivered,			
10 cwt. and over	£210	per ton	
Crude (70%)	£200	per ton	
Ore (60% basis)	22s./24s.	nom. per unit, c.i.f.	

NICKEL

99.5% (home trade)	£483	per ton	
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OTHER METALS

Aluminium, 99.5%, £156 per ton	Osmium, £46 oz. nom.
Bismuth	Palladium, £7 oz.
(min. 2 cwt. lots) 16s. lb.	Platinum, £30/£31
Cadmium (Empire), nominal	Rhodium, £43 10s. oz.
Chromium, 6s. 5d./7s. lb.	Ruthenium, £22 oz.
Cobalt, 21s. lb.	Quicksilver, £110
Gold, 250s. 9d. f.oz.	ex-warehouse
Iridium, £43 oz. nom.	Selenium, 35s. 9d. nom.
Magnesium, 2s. 4d. lb.	per lb.
Manganese Metal (96%-98%)	Silver 74½d. f.oz. spot and
£225/£262	74½d. f.d.
Osmiridium, £40 oz. nom.	Tellurium, 15s./16s. lb.

ORES, ALLOYS, ETC.

Bismuth	30% 5s. 0d. lb. c.i.f.
	20% 3s. 3d. lb. c.i.f.
Chrome Ore—	
Rhodesian Metallurgical (semi-friable) 48% ..	£12 8s. 0d. per ton c.i.f.
Refractory 45% ..	£12 14s. 0d. per ton c.i.f.
Smalls 44% ..	£8 5s. 6d. per ton c.i.f.
Magnesite, ground calcined ..	£26-£27 d/d
Magnesite, Raw	£10 - £11 d/d
Molybdenite (85% basis) ..	102s. 4d. - 103s. per unit c.i.f.
Wolfram and Scheelite (65%) ..	190s./195d.-*U.K. Gov't Stock
	d/d 195s. 0d. plus charges
Tungsten Metal Powder ..	16s. 9d. nom. per lb. (home)
(98% Min. W.)	
Ferro-tungsten	13s. 9d. nom. per lb. (home)
Carbide, 4-cwt. lots	£37 6s. 3d. d/d per ton
Ferro-manganese, home	£54 15s. 0d. per ton
Manganese Ore Indian c.i.f. Europe ..	
(46%-48%)	68d./70d. per unit nom.
Brass Wire	2s. 8½d. per lb. basis
Brass Tubes, solid drawn ..	2s. 1d. per lb. basis

* ex-Government stock for prompt delivery from October 22

COMPANY NEWS AND VIEWS

Rand and O.F.S. Quarterly Results

Of the mines in the Anglo American Group, full details in respect of whose quarterly reports for Rand and O.F.S. mines will be found on pages 468-70, operations at Western Holdings provided the greatest point of interest during the three months which ended on September 30. Apart from the high value of 1,562 in. dwt., which was obtained from samples over 70 ft. of the Basal reef intersected in the 41 Haulage North (now 500 ft. from the Free State Geduld Border), development work carried out in the vicinities of the two shafts gave good results. At No. 1 shaft the value of 1,025 in. dwt. is the highest ever attained in that area, while 763 in. dwt. at No. 2 was well up to average.

Undoubtedly most interest in the Johannesburg Consolidated returns (see page 466) was centred on Randfontein which has recently been a strong market. That the uranium treatment plant at the mine has virtually reached its full capacity is particularly good news; and the £465,000 earned from uranium and acid—which was not subject to tax owing to reliefs on previous capital expenditure—shows a healthy advance on last quarter's initial uranium profit figure of £316,000—also not subject to tax. Mining operations on the uranium bearing Bird Reefs at the property are being extended to prepare for the additional ore which will be required when extensions to the uranium plant have been completed around the year-end.

Another important uranium producer which adjoins the northerly border of Randfontein is West Rand Consolidated in the General Mining Group. Here, uranium profits have been rising steadily since production began, last quarter's figure of £520,357 excluding £54,311 representing uranium loan repayments was nearly £100,000 up from net earnings reported for the first quarter of the current year.

The Anglo-Transvaal Consolidated Investment quarterlies which appear in full on pages 462-465 reveal that progress by Merriespruit and Virginia has been maintained. At Merries, results were substantially unchanged from those of the last quarter and, indeed, on payability and value, from the general average achieved so far, but Virginia, its northern neighbour, reported a marked rise in payability from 49.6 per cent to 63.8 per cent. This, no doubt, resulted in the uncommonly high amount of 4,325 ft. being payable. Shaft sinking at Hartbeestfontein continued, and at No. 1 shaft the final depth of 3,041 ft. was reached. No. 2 shaft was sunk 228 ft. during the quarter to a depth of 3,297 ft. which depth is considered sufficient for present requirements.

Some of the salient points in the Union Corporation's quarterly results were considered in this column last week. These results appear in full this week on page 467.

General Mining Maintains Interim

An interim dividend of 2s. per ordinary share of £1 on the company's issued ordinary capital of £1,952,134 has been declared by the General Mining and Finance Corporation in respect of the year ending December 31, 1954. No change has therefore been made from the previous year's interim which was followed by a final of 3s. per share bringing total distribution for the year to 5s. or 25 per cent.

As a result of the recent merger between the Corporation and Strathmore Consolidated Investments 881,608 "S" ordinary shares have been issued. Under the terms of the merger agreement, however, these new shares do not rank the dividends in respect of the year 1954. No distribution can therefore be expected on the "S" shares until next year.

Capital Returns by New State, Wit Gold and New Modder

Proposals for returns of capital have been submitted to shareholders of New State Areas, Witwatersrand Gold Mining, and New Modderfontein Gold Mining.

In the case of New State, a return of 2s. a share is recommended which would absorb the sum of £151,403 14s. thereby reducing the capital to £1,362,633 6s. divided into 1,514,037 shares of 18s. In respect of Wit Gold it is proposed that 2s. 6d. a share should be returned which would absorb £58,703 2s. 6d. and reduce the capital of the company to £316,996 17s. 6d. divided into 469,625 shares of 13s. 6d. each. Extraordinary meetings for the purpose of considering the proposals for these two companies will be held on October 28.

It is also recommended that 3d. a share should be returned by New Modder. This would reduce the capital of the company to £455,000 in 2,800,000 shares of 3s. 3d. The proposal will be considered at the same time as the annual general meeting is held at Johannesburg on November 15.

Aluminium Ltd.—Dividend, Expansion Programme and Capital Increase

A quarterly dividend in respect of the third quarter of the current financial year to December 31, 1954 of 50 c. (U.S.) per share has been declared by Aluminium Ltd. on the outstanding 9,013,994 common shares. This distribution is the same as that for the previous two quarters. Total dividends paid in respect of the year ended December 31, 1953 amounted to \$2.00 (U.S.) per share.

It is also announced that plans for increasing the rated capacity of the company's aluminium plant at Kitimat, British Columbia, by 65 per cent have been put in hand. This decision was taken in order to meet the expected increase in near-term demand for aluminium products and will raise the company's output by an additional 60,000 tons of aluminium ingot per year. It is estimated that the capital requirements of this expansion programme, excluding alumina facilities, will be approximately \$45,000,000.

To make provision for future expansion to meet the probable growth in demand for aluminium and related products it is also intended to increase the authorized capital of the company from 10,000,000 to 20,000,000 no par value shares. Tentative plans are being studied under which shareholders may be offered for subscription new shares of the company early in 1955. In the event of such an offer being made it is expected that the proceeds would amount to something in the neighbourhood of \$40,000,000.

Southern Kinta's New Property

The full report and accounts of Southern Kinta Consolidated for the year ended March 31, 1954, contains some interesting information given by the chairman, Mr. J. Ivan Spens, concerning the acquisition of a property in Perak estimated at about 1,344 acres known as the "Sungei Bernam Area." The purchase is being made from Anglo-Oriental (Malaya) and as regards price is subject to adjustment, if necessary, after check boring has been carried out by an independent firm of consulting engineers. Due to current security conditions, however, this boring cannot at present take place and it has therefore been agreed that, in its absence, results obtained from actual dredging operations over the first year will be acceptable as a basis on which the purchase price can be settled.

It is intended that the company's Southern Kampar No. 1 dredge will be transferred to work the new area when it has completed operations in its present section some time during 1955. The dredge will probably be out of production for at least 18 months to two years during the transfer which is to cost £410,000 excluding boring expenditure and additional finance for power supplies which will be necessary. Mr. Spens disclosed that the additional reserves which would be made available by this new acquisition should ensure continuity of operation for the Southern Kampar No. 1 and at least one more of the company's other eight dredges.

Looking towards the future Mr. Spens stressed the importance of maintaining adequate cash resources for exploration and operation of new properties. No undue apprehension should, however, be felt at present for net liquid assets, after taking into account provision for future taxation, amounted as at March 31, 1954, to nearly £3,000,000 representing over 80 per cent of present market capitalization.

Southern Kinta 5s. ordinary shares now stand at just over 18s. 6d. to yield almost 18½ per cent. Meeting, London, October 29.

An Interesting Privately Owned Nigerian Columbite-Tin Producer

Of the numerous Nigerian tin-columbite producers whose shares are privately held and therefore beyond the ken of the investor, some are, of course, very small propositions indeed; but there are a few whose yearly performance is well above the mediocre class and in the event of their ever coming on to the market they would merit serious consideration by the investor.

One such company of which we have received information is the privately owned columbite-tin producer, Tin and Associated Minerals Ltd. This company was formed in 1951 to exploit columbite and tin properties in Northern Nigeria and during the last three years production activities have been concentrated mainly at Udegin Beki in Benue Province, not far from the Benue River. Operations during this time have obviously been very satisfactory for during the year ended March 1954 produc-

tion amounted to 188 tons of columbite and 159 tons of tin of shipping grade. Moreover, the company expects to increase columbite production to 280 tons during the current year which, if achieved, would make the company one of the world's leading columbite producers.

Nor does there appear to be any difficulty standing in the way of the company attaining its target figure. During June, July and August of this year production totalled 113 tons columbite and 80 tons tin of shipping grade. While these figures indicate a yearly output well in excess of the target envisaged it is to be remembered that June to September represents the months when peak production is expected owing to the ample supplies of cutting water available and that unless water conservation facilities are available output tends to fall away outside the rainy season.

The mid-term outlook is also bright. A firm of leading London mining consultants are currently proceeding with an extensive assessment and exploration programme on the Udegini Beki properties to determine the worth of a primary columbite deposit they have discovered on the property where the columbite lies in a soft totally weathered granite as an original constituent. While it is too early to state the full extent of this granite preliminary mapping has shown its extent to be upwards of half a square mile. Looking further ahead an expansion of operations is envisaged in the columbite-rich Kuru area on the plateau.

Filani Maintains Profits

In a preliminary profit statement by the Filani (Nigeria) Tin Mining Company which operates in the Bauchi district of Northern Nigeria, it is disclosed that profits, after all charges including taxation, earned during the year 1953 was £7,447 or virtually the same as for the previous year of £7,313.

Owing to a new basis of dividend payment under which dividends are no longer paid tax free there is little actual change in distribution despite the doubled dividend of 22½ per cent on the unchanged issued capital of £26,494 in 2s. units as compared with 11½ per cent previously. The actual amount absorbed by dividends was £3,279 as against £2,981 in respect of the preceding period. The company's carry forward was increased to £7,544 as against £6,376 previously.

Burmah Oil's Interim

It has been announced by the Burmah Oil Co. that an interim ordinary dividend of 7½ per cent as against 2½ per cent previously has been declared on the company's issued ordinary

capital of £20,604,770 in stock units of £1. This increase is intended to bring the interim and final payments into more equal proportion, and implies no addition to total distribution for the year. Last year's interim was followed by a final of 15 per cent which in respect of the current year to December 31 is likely, therefore, to be adjusted to 10 per cent.

BRITISH BURMAH PETROLEUM COMPANY

MERGER OF OIL INTERESTS

The 43rd Ordinary General Meeting of The British Burmah Petroleum Company Limited was held on September 30 in Johannesburg, Mr. S. G. Menell presided in the absence of the Chairman, Mr. A. P. Faickney.

The following is an extract from the chairman's circulated statement:—

It gives me satisfaction to be able to report the resumption of profits and a dividend after the long period which has elapsed since the Japanese enemy over-ran Burma and we had to "scorch" and destroy our assets.

I am glad to be able to inform shareholders of the signing of an Agreement between the Union Government of Burma, The Burmah Oil Company, Limited, The Indo-Burmah Petroleum Company Limited and your Company in terms of which a new Company, since registered in Burma, The Burma Oil Company (1954) Limited, is in the process of taking over the three oil companies' oilfields, refinery assets and production operations in Burma as from January 1, 1954.

The new Company will have an initial issued capital of 20,000,000 Kyats (equivalent to £15,000,000 sterling) all of which will be allotted in the form of vendors' shares to the Oil Companies in consideration for the assets being acquired. In terms of Agreements, your Company receives the right to 43,720 shares of K.100 each in the new company. After provision for depreciation only, at income tax rates applicable at the time, the whole of the net profits of The Burma Oil Company (1954) Limited as certified by the Auditors shall be paid out as dividends to the Shareholders. Your Company can therefore look forward in future to a return on its investment in the New Company.

In respect of its share in the merger of the oil interests in Burma, under the management of The Burmah Oil Company, Limited, your Company received £14,322 during the 9 months to December 31, 1953.

The report was adopted.

September Mine Returns

WEST AFRICAN GOLD

Company	September, 1954				Current Financial Year Total to date				Last Financial Year Total to date			
	Tons (000)	Yield (oz.)	Profit (£000)	Months since year end	Tons (000)	Yield (oz.)	Profit (£000)	Tons (000)	Yield (oz.)	Profit (£000)	Tons (000)	Yield (oz.)
Amal. Banket	78	13,171	41.4	12	840	134,005	214.4	721	111,523	215.2	35	11,808
Ariston Gold	35	11,808	61.5	12	399	130,545	612.5	346	116,821	523.1	27	16,752
Ashanti	27	16,752	75.0	12	300	191,417	790.5	278	179,831	902.0	30	6,756
Bibiani (1927)	30	6,756	18.0	12	333	77,061	135.1	364	74,121	134.9	562	2,634
Bremang	10	4,132	19.4	3	4,427	20,510	19.0	5,082	23,789	103.2	30	12,405
G.C.M. Reef	3	3,162	15.7	12	34	34,916	161.3	30	28,093	132.6	12	13,956
Konongo	1	1,163	6.1	12	12	13,956	68.3	12	12,746	63.4	42	3,576
Lyndhurst Deep	42	3,576	12.6	12	476	45,449	154.9	499	49,261	170.9	29	6,019
Marlu Gold	29	6,019	5.0	6	165	35,568	25.8	149	26,105	68.1		

* Cu. yd. dredged

Profit figures include premium revenue

SOUTHERN RHODESIAN GOLD

Company	September, 1954				Current Financial Year Total to date				Last Financial Year Total to date			
	Tons (000)	Yield (oz.)	Profit (£000)	Months since year end	Tons (000)	Yield (oz.)	Profit (£000)	Tons (000)	Yield (oz.)	Profit (£000)	Tons (000)	Yield (oz.)
Arcturus	2.8	872	3.3	3	8.7	2,675	9.4	9.4	—	10.0	24.0	7,416
Cam & Motor	17.5	3,134	15.6	12	203.9	34,384	120.6	182.7	27,438	54.8	6.0	3,551
Falcon Mines	6.0	3,551	23.5	9	54.6	32,384	210.1	54.2	30,390	193.5	17.8	2,492
Globe & Phoenix	3.2	2,492	3.1	9	164.1	22,487	29.7	186.7	21,372	10.6	3.2	935
Motapa Gold*	3.2	935	10.2	3	9.4	2,941	30.3	4.3	—	20.0	5.8	557
Muriel Mine	5.8	557	1.6	4	58.7	9,803	4.1	58.6	10,483	16.3	7.6	1,041
Rezedo	7.6	1,041	1.1	3	23.6	3,063	3.9	23.7	—	8.9		
Tebekwe												

* Excluding premium gold sales

† Profit includes £4,986 from accumulated concentrates, which were re-treated in roasting unit, also £273 in respect of gold produced during July

‡ Profit includes £191, being an adjustment on July output L indicates a loss

INDIAN GOLD

Company	September, 1954				Current Financial Year Total to date				Last Financial Year Total to date			
	Tons (000)	Yield (oz.)	Profit (£000)	Months since year end	Tons (000)	Yield (oz.)	Profit (£000)	Tons (000)	Yield (oz.)	Profit (£000)	Tons (000)	Yield (oz.)
Champion Reef	14	6,414	9	134	53,081	99	38,232	18	6,098	9	161	60,076
Mysore	18	6,098	9	161	60,076	141	53,183	22	5,622	9	193	55,161
Nundydroog*	22	5,622	9	193	55,161	187	51,642	—	267†	9	—	1,319†
Ooregum	—	267†	9	—	1,319†	66	18,515					

* Includes tailings

† Yield from clean up only

OIL OUTPUT

Company	September (in tons)	Months Since Year End	Cumulative Totals (in tons)	
			This year to date	Last year to date
Anglo Ecuadorian	26,992	6	162,530	156,621
Apex Trinidad	36,062	12	446,244	443,218
Attock Oil*	46,247	9	136,054	120,888
Kern Oilfields	25,952	4	105,876	111,376
Kuwait Oil	4,236,732	10	30,280,177	27,919,773
Lobitos Oil	40,374	9	371,442	346,301
Trinidad Central	8,558	9	79,308	71,943
Trinidad Leaseholds	78,458	3	239,196	224,516
Trinidad Petroleum	40,093	2	81,592	78,874
Ultramar Oil†	110,535	9	967,835	946,383
Qatar‡	385,920	8	3,054,734	—

Note—1 ton taken to equal seven barrels

* September quarter

† Output figures are for S.A.P. Las Mercedes in which Ultramar holds a 50 per cent interest

‡ August figures

LONDON TIN CORPORATION

CHAIRMAN'S SPEECH

The twenty-eighth annual general meeting of London Tin Corporation, Ltd., was held on October 15 at The Chartered Insurance Institute, 20 Aldermanbury, London, E.C.

Mr. J. Ivan Spens, O.B.E., chairman of the Corporation, who presided, said:—

ACCOUNTS

The profit for the year, before taxation, was £1,202,664, compared with £1,358,893 for the previous year.

Taxation takes £718,000, against £910,000 last year, a reduction which reflects in some measure the welcome cessation of the Excess Profits Levy on December 31, 1953.

The net profit after taxation thus becomes £484,664, compared with £448,893 last year.

The dividend of 24 per cent, less Income Tax at 9s. in the £ paid on June 16, 1954, took £477,607, leaving £7,057 to be added to the amount carried forward, which now stands at £309,217.

Following last year's procedure, the dividend was declared as an Interim. A statement was made in May last that no final dividend would be recommended and all Shareholders were so informed by postcard.

PRICE OF TIN

The average London price of metallic tin during the year was £660 per ton, compared with £943 during the previous twelve months. This substantial drop has, of course, adversely affected the results of the operating Companies, and in some measure also the income of this Corporation. Moreover persistently low prices would be certain to influence policy in regard to the expansion of mining operations, especially when new plant or heavy expenditure in connection with the acquisition of new mining properties are involved. The tendency in regard to alluvial tin bearing areas for future exploitation, both in Malaya and Nigeria, has been to find a lower grade content per cubic yard and at deeper levels. With, at the same time, costs continuing high, such areas are costly to prove and to mine and consequently their payability will depend on an adequate tin price.

During the past few months the price has averaged above £700 a ton, which is a welcome improvement on the year's average.

The United Nations Conference on Tin reassembled at Geneva in November, 1953, and produced a draft International Tin Agreement, which was signed by the requisite number of producing and of consuming countries.

As will have been seen in the Press, the third session of the Interim Committee of the International Tin Council met in London on September 20 and 21. The countries which had signed the International Tin Agreement but which were not members of the Interim Committee were invited to attend the meeting.

The meeting considered draft Articles for the International Tin Council and also the Agenda for the first meeting of the Council. Many of the delegations were able to indicate the position of their countries with regard to the date on which ratification or acceptance of the Agreement could be expected.

In the light of these statements the first meeting of the Council should be held towards the end of this year.

The Industry will provide a substantial quantity of Tin, or its equivalent in cash, for the Buffer Stock which is to be established under the Agreement and the individual Companies and Miners will have a certain amount of their liquid resources employed in connection with the Buffer Stock.

MALAYA

The security position in Malaya continued to improve, although precautions have still to be taken for the protection of Staff and mines. The threat of a considerable number of well-armed bandits persists and it is essential to maintain defences and to avoid complacency.

During the year under review the output of tin concentrates from the mines under the management of Anglo-Oriental (Malaya) Ltd. was 15,916 tons, as compared with 16,636 tons during the previous year, so that production has been well maintained even though some of the plants were out of production. Two dredges recommenced operating after having been moved to new areas and, since the close of the year, two

more have commenced operating. Nine dredges are idle, of which four are comparatively old and shallow digging and are without ore reserves. Of the remainder, two are to be transferred to new areas, two cannot at present be operated because of security conditions, and one is later to be equipped with special equipment for treating the tin-bearing clay which is prevalent in the property on which the dredge is installed.

Prospecting is still not easy and generally has only been undertaken in the safer areas, usually near populated and protected centres, or where special security arrangements against banditry can be established by co-operation with the Security Forces. It is essential that widespread prospecting be resumed as soon as security conditions permit in order to try and prove fresh reserves to take the place of those now being mined or equipped. Only a limited amount of prospecting has been carried out since the War and the need to find and develop new areas, in order to secure continuity of operations, is becoming increasingly urgent.

SIAM

One dredge operated during the year. Two are still in course of re-erection on a new property and, since the end of the year under review, another has commenced trials.

The rate of royalty on tin was reduced by 50 per cent on September 16, 1953. This will certainly be of great assistance toward the mining of lower grade ground which otherwise might have been left unworked. Government will, of course, continue to derive revenue from Income Tax on profits whilst the reduction in the rate of royalty should encourage the expansion of mining operations and in all probability ultimately increase the Siamese national income from the latter source.

BURMA

Conditions of unrest in Lower Burma, where the mines of Tavoy Tin Dredging Corporation are situated, still preclude active mining.

That Corporation has agreed in principle to a joint venture with the Government of Burma and is now awaiting developments, but meantime continues to bear the cost of maintaining the mines without hope of immediate revenue. It is hoped that the joint venture proposals can be implemented soon and that security in the mining area can be established so that the mines can recommence operating.

NIGERIA

The production of tin concentrate from the mines under the management of A. O. Nigeria Ltd. was 4,480½ tons, compared with 4,927 tons in the previous year, but columbite production increased to 940 tons, compared with 604 tons in the previous year. As stated last year, considerable quantities of columbite ore have been found in biotite granite on the Plateau, and these have been confirmed and are now being mined.

In January last Government agreed to the royalty on tin being based on the average price for the previous month, instead of, as hitherto, on the price for the preceding quarter. Whilst this is a welcome step, particularly during times of violent price fluctuation, your Board believes that the most equitable and reasonable method would be for the royalty, on both tin and columbite, to be based on the actual price received f.a.s. Nigerian port of shipment.

NYASALAND

Prospecting continued under the direction of London Nyasaland Mining Corporation Ltd. Mineralization has been confirmed, but it is still too early to be certain whether commercial quantities of pyrochlore will be found.

STAFF

Opportunities for discussion were recently afforded by the visits to London of Mr. D. T. Waring, who is not only Chairman of Anglo-Oriental (Malaya) Ltd., but a Director of this Corporation, and of Mr. H. E. Wilson, Chairman of A. O. Nigeria Ltd. Our thanks are due to the Managements and Staffs throughout the Organization for the excellent work they have carried out during the year, and for the results obtained in difficult and ever changing conditions.

The report and accounts for the year ended April 30, 1954, were adopted and the retiring directors re-elected.

ANGLO-TRANSVAAL CONSOLIDATED INVESTMENT CO. LIMITED

Mining Companies' Directors' Reports for Quarter Ended 30th September, 1954

Following are the reports on work done during the quarter ended September 30, 1954

ANGLO-TRANSVAAL COLLIERIES, LIMITED

The Sales Output of the Subsidiary Collieries controlled by this Company for the quarter ended September 30, 1954, totalled 260,079 tons.

CONSOLIDATED MURCHISON (TRANSVAAL) GOLDFIELDS & DEVELOPMENT COMPANY, LIMITED

The following is the report on the work done during the quarter ended September 30, 1954.

Tons crushed	24,236
Estimated Profit from Antimony and Gold	£260,447

Sales of Antimony were effected during the quarter.

Taxation for the nine months ended September 30, 1954, in respect of total profits for this period amounting to £508,990, is estimated at £150,000.

The Capital Expenditure during the period amounted to £3,308.

During the quarter the development footage accomplished amounted to 2,013 ft. In connection with antimony/gold ore bodies, 1,479 ft. were developed in haulages and cross-cuts and 340 ft. in ore bodies beyond the previously established payable limits. 270 ft. were sampled, of which 30 ft. were found to be payable; the remaining 240 ft. were unpayable on account of the combined gold and antimony content.

No development was carried out on reef in the main ore bodies known to carry payable values.

A further 194 ft. were accomplished in connection with lenses known to carry gold only, of which 20 ft. were on reef. 10 ft. were sampled and proved to be unpayable, giving an average value of 3.5 dwt. per ton over a width of 64 in.

EASTERN TRANSVAAL CONSOLIDATED MINES, LIMITED

PRODUCTION

The total tonnage treated by the four gold mines operated by this Company amounted to 55,940 tons, resulting in a working profit (including sundry revenue) of £44,802 for the quarter.

The drop in working profits for the quarter was attributable to an increase in working costs mainly caused by the inadequate supply of coal for operating the New Consort Power Station, particularly during September, 1954, when working costs were increased by an amount estimated at £4,000. Since the close of the quarter an improvement has been effected in the delivery of coal supplies, but it is estimated that, until adequate supplies of coal are made available, costs will be adversely affected by approximately £2,000 per month.

TAXATION

Taxation for the quarter ended September 30, 1954, in respect of mining profits for this period amounting to £44,802, is estimated at £5,000.

CAPITAL EXPENDITURE

Capital Expenditure during the quarter amounted to £24,305.

DEVELOPMENT

The total development footage amounted to 11,471 ft.

SHAFT SINKING AND EQUIPMENT

Sheba Gold Mine.—The Soper Shaft is being re-opened and equipped to expedite the prospecting of the lower levels of the Edwin Bray and Margaret Sections.

Agnes Gold Mine.—Preparations were commenced for the sinking, from the 17th level, of a sub-vertical shaft to facilitate exploration of the Ivy Main Shoot at depth.

REDUCTION PLANT

New Consort Gold Mine.—The erection of the new crushing and flotation plants for treating New Consort ore, only, is nearing completion.

Sheba Gold Mine.—The new crushing and flotation plants, which were brought into commission at the end of June, 1954, are operating satisfactorily.

Agnes Gold Mine.—Good progress was made on foundations for the new reduction plant. This has been sited at the entrance to the Ben Lomond Tunnel in order to effect economies in the delivery of ore.

HARTEBEESTFONTEIN GOLD MINING COMPANY, LIMITED

SHAFT SINKING

No. 1 Shaft was sunk 110 ft. in Upper Witwatersrand Quartzites to its final depth of 3,041 ft. In addition, 55,560 cu. ft. were excavated in the cutting of stations at the 6th level and at the Transfer level, at depths of 2,950 ft. and 3,000 ft., respectively.

The shaft was concrete lined to a depth of 3,033 ft., of which 125 ft. were accomplished during the quarter. The equipping of the shaft was completed to a depth of 3,030 ft., of which 230 ft. were accomplished during the quarter.

No. 2 Shaft was sunk 228 ft. in Ventersdorp Lava to a depth of 3,297 ft., at which the shaft has been stopped, this depth attained being sufficient for present requirements. In addition, 63,018 cu. ft. were excavated in the cutting of stations at the Transfer level, the main pumping level and the belt level, at depths of 3,096 ft., 3,140 ft. and 3,170 ft., respectively.

The shaft was concrete lined to a depth of 3,290 ft., of which 265 ft. were accomplished during the quarter. The equipping of the shaft was completed to a depth of 3,290 ft., of which 370 ft. were accomplished during the quarter.

DEVELOPMENT

Development was commenced at No. 1 Shaft during August, 1954, on the 5th, 6th and Transfer levels and at No. 2 Shaft during September, 1954, on the Transfer level, the main pumping level and on the belt level. A total of 2,531 ft. of development, all in country rock, was accomplished in connection with station layouts, ore passes and in crosscutting at No. 1 Shaft to the Vaal Reef horizon on the 5th and 6th levels. In addition, 30,881 cu. ft. were excavated in sumps, pump chambers and in service bays.

Of the footage advanced, 1,971 ft. were at No. 1 Shaft and 560 ft. were at No. 2 Shaft.

REDUCTION PLANT

Work was commenced during August, 1954, on excavations and foundations for the reduction plant, which will have an initial capacity of 50,000 tons per month.

EUROPEAN HOUSING

Work was continued on the permanent housing programme. During the quarter 94 houses were completed, bringing the total to 203 houses completed in extension of the Stilfontein Township and work is proceeding on a further 39 houses.

NATIVE ACCOMMODATION

Nineteen additional rooms in the Compound were completed and work is in progress on a further 39 rooms. An open-air theatre in the Compound, for cinema and dancing performances, has been completed. The permanent kitchen was commenced.

MINE BUILDINGS AND PLANT

No. 1 Shaft Area.—Additional shaft offices and change-houses were completed. The sinking hoist was dismantled and the building which housed this hoist is being converted into a rock-drill fitting shop and a drill sharpening shop.

No. 2 Shaft Area.—The Electricity Supply Commission sub-station building was completed.

LABOUR

The labour strength at the end of the quarter was : Europeans, 300 ; Natives, 1,309.

CAPITAL EXPENDITURE

Capital Expenditure amounting to £695,790 was incurred during the quarter. The total Capital Expenditure, including preliminary expenses, incurred to September 30, 1954, amounted to £4,008,491.

MERRIESPRUIT (ORANGE FREE STATE) GOLD MINING COMPANY, LIMITED**SHAFT SINKING**

No. 2 Shaft was sunk 662 ft. to a total depth of 1,657 ft. In addition, 7,776 cu. ft. were excavated in the cutting of a pump station at a depth of 974 ft.

The formations traversed were Karroo Shales to a depth of 1,120 ft., followed by 492 ft. of Ventersdorp Lava to a depth of 1,612 ft., at which depth quartzites of the Upper Witwatersrand System were entered.

The intersection in pilot holes of water-bearing fissures, requiring cementation, delayed sinking operations.

The shaft was concrete lined to a depth of 1,602 ft., of which 665 ft. were accomplished during the quarter.

DEVELOPMENT

Development is proceeding from No. 1 Shaft on the 26th, 31st, 33rd, 34th and 35th levels. A total of 5,846 ft. of development was accomplished and, in addition, 106,505 ft. were excavated in sumps, pump chambers and in service bays. Progress was retarded due to the intersection in pilot holes of water-bearing fissures, requiring cementation.

The following are the sampling results of the quarter's development :—

	No. 1 Shaft and Total
Footage advanced	5,846
Footage on reef	2,053
Footage sampled	2,110
Payable Footage Sampled :—	
Payable footage	1,340
Percentage payable	63.5
Channel width—in.	26.0
Channel value—dwt.	13.35
In.-dwt.	347

(The above results are based on actual sampling. No allowance has been made for adjustments necessary in the valuation of the corresponding Ore Reserve.)

SHAFT EQUIPMENT

No. 1 Shaft.—Preparations were completed for the deepening of this shaft and sinking operations will be commenced during the quarter ending December 31, 1954.

No. 2 Shaft.—The 750 H.P. electric motor for the sinking hoist was replaced by a 1,150 H.P. electric motor.

REDUCTION PLANT

Work is proceeding on the erection of the reduction plant.

MINE BUILDINGS AND PLANT

No. 1 Shaft Area.—The erection of the permanent workshops is nearing completion. Work is in progress on the permanent change house and on the erection of steelwork and on the brick panels of the permanent compressor house.

EUROPEAN HOUSING

Work was continued on the permanent housing programme in the Virginia Township. During the quarter, 75 houses and a block of rooms in the single quarters, together with the Mess were completed. Work is proceeding on a further 41 houses.

NATIVE ACCOMMODATION

At the end of the quarter 2,084 Natives, including Contractors' Natives, were housed in the permanent Compounds. The building of additional rooms at No. 1 compound is proceeding.

LABOUR

The labour strength at the end of the quarter was : Europeans, 260 ; Natives, 2,058.

CAPITAL EXPENDITURE

Capital Expenditure amounting to £776,002 was incurred during the quarter.

The total Capital Expenditure, including preliminary expenses, incurred to September 30, 1954, amounted to £5,101,608.

MIDDLE WITWATERSRAND (WESTERN AREAS) LIMITED

This Company retains its interests in Mineral Rights in the Virginia and Odendaalsrus Districts of the Orange Free State and in the Klerksdorp District of the Transvaal.

No drilling operations were carried out during the quarter.

NEW KLERKSDORP GOLD ESTATES, LIMITED**PRODUCTION**

Tons milled : 33,500, yielding 4,095 ounces of fine gold.

		Per Ton Milled
Revenue from Gold	£50,930	30s. 5d.
Working Costs	£55,392	33s. 1d. (270s. 7d. per oz. fine)
Deficit	£4,462	2s. 8d.
Sundry Revenue	£745	5d.
Working Loss for Quarter	£3,717	2s. 3d.

The working loss for the quarter, as shown above, does not take into consideration interest on loans amounting to £1,511 for the quarter. No liability was incurred for the quarter in respect of mining taxation payable to the Government.

DEVELOPMENT

The total footage advanced during the quarter amounted to 2,079 ft. Of 1,320 ft. sampled, 510 ft., equal to 39 per cent, were payable, having an average value of 4.60 dwt. over a channel width of 42.0 in., equivalent to 193 in.-dwt.

(The above results are based on actual sampling. No allowance has been made for adjustments necessary in the valuation of the corresponding Ore Reserve.)

The influx of water, which retarded development on the 6th and 9th levels during the previous quarter, was brought under control during August, 1954.

URANIUM PRODUCTION

During the quarter, the pipe lines and pumping stations required to convey the Uranium-bearing slimes from New Klerksdorp Gold Estates, Limited, and the three other contributing mines, to the extended treatment plant at Stilfontein Gold Mining Company Limited, were completed and tested.

CAPITAL EXPENDITURE

Capital Expenditure amounting to £10,908 was incurred during the quarter on plant for Uranium production.

(continued overleaf)

RAND LEASES (VOGELSTUISFONTEIN) GOLD MINING COMPANY, LIMITED**PRODUCTION**

Tons crushed : 554,000 yielding 93,274 oz. fine of gold.

		Per Ton Crushed
Revenue from Gold	£1,159,838	41s. 11d.
Working Costs	£1,040,582	37s. 7d. (223s. 1d. per oz. fine)
	£119,256	4s. 4d.
Sundry Revenue	£8,900	4d.
Working Profit for Quarter	£128,156	4s. 8d.

Working costs per ton, 37s. 7d., include 5s. 2d in respect of development expenditure.

TAXATION AND GOVERNMENT'S SHARE OF PROFITS

Taxation and Government's share of profits in terms of the Mining Lease for the quarter ended September 30, 1954, in respect of total profits for this period amounting to £128,156, are estimated at £13,500.

CAPITAL EXPENDITURE

The net expenditure on Capital Account during the quarter amounted to £35,462, of which £27,129 was incurred on the sinking of No. 1 Tertiary Shaft.

SHAFT SINKING

No. 1 Tertiary Shaft was sunk 63 ft. to a depth of 100 ft. below the 36th level. At the end of the quarter, the total shaft length accomplished was 207 ft., of which 19 ft. above the 36th level remain to be slipped to full dimensions. 121 ft. were concrete lined during the quarter. In addition, 78 ft. and 20,304 cu. ft. were excavated in the cutting of pump chambers on the 36th level and in the conveyor cross-raise to the shaft.

Kimberley Reef No. 2 Incline Shaft.—The deepening of this shaft was commenced during the quarter and 87 ft. were sunk to a total length of 1,488 ft.

DEVELOPMENT

A total of 20,389 ft. of shaft sinking and development was accomplished during the quarter, of which 10,045 ft. were sampled, showing 4,170 ft., equal to 42 per cent, was payable.

Payable reef disclosures were distributed as follows :—

Reef	Footage Sampled	Payable				
		Footage	Percentage	Channel width (in.)	Channel value (dwt.)	In.-dwt.
Main Reef	2,870	1,065	37	28.6	8.48	242
Main Reef Leader	4,810	2,490	52	16.7	15.34	256
South Reef	625	295	47	9.2	24.33	224
Total Main Reef Series	8,305	3,850	46	19.4	12.87	250
Bird Reef	50	—	—	—	—	—
Kimberley Reef	1,690	320	19	63.6	4.20	267
Totals and Averages	10,045	4,170	42	22.8	11.01	251

(The above results are based on actual sampling. No allowance has been made for adjustments necessary in the valuation of the corresponding Ore Reserve.)

VILLAGE MAIN REEF GOLD MINING COMPANY (1934) LIMITED**PRODUCTION**

Tons crushed : 104,700, yielding 15,585 oz. fine of gold.

		Per Ton Crushed
Revenue from Gold	£194,122	37s. 1d.
Working Costs	£161,690	30s. 11d. (207s. 6d. per oz. fine)
Working Profit for Quarter	£32,432	6s. 2d.

Working costs per ton, 30s. 11d., include 6s. 1d. in respect of development expenditure.

TAXATION

Taxation for the quarter ended September 30, 1954, in respect of total profits for this period amounting to £32,432, is estimated at £10,500.

DEVELOPMENT

9,215 ft. of development were advanced during the quarter and 5,973 ft. of old drives and crosscuts were reconditioned. In addition, 1,902 ft. of underground diamond drilling were done as an aid to development and in exploratory work.

CAPITAL EXPENDITURE

The expenditure on Capital Account during the quarter amounted to £882.

VIRGINIA ORANGE FREE STATE GOLD MINING COMPANY, LIMITED**DEVELOPMENT**

A total of 9,988 ft. of development was accomplished and, in addition, 122,218 cu. ft. were excavated in sumps, pump chambers and in service bays. The whole of this work was at No. 1 Shaft. Progress was retarded due to the intersection in pilot holes of water-bearing fissures, requiring cementation.

The following are the sampling results of the quarter's development :—

	No. 1 Shaft and Total
Footage advanced	9,988
Footage on reef	6,885
Footage sampled	6,775
Payable Footage Sampled :—	
Payable Footage	4,325
Percentage payable	63.8
Channel width—in.	26.9
Channel value—dwt.	10.71
In.-dwt.	288

(The above results are based on actual sampling. No allowance has been made for adjustments necessary in the valuation of the corresponding Ore Reserve.)

SHAFT EQUIPMENT
At No. 1 Shaft, equipment is being installed at the main pumping stations on the 16th and 28th levels.

REDUCTION PLANT
Trial milling operations were continued during the quarter and production of gold commenced officially on September 22. Regular monthly declarations will commence with the month of October, 1954.
An amount of approximately £337,000 accrued towards the end of the quarter from the sale of 27,054 f.oz. of gold recovered during the trial milling period.

Work on extensions to the reduction plant to provide a milling capacity of 75,000 tons per month is proceeding satisfactorily.

URANIUM AND ACID PLANTS
Construction work on the sulphuric acid plant is nearing completion.
Construction work on the uranium plant is proceeding satisfactorily.

MINE BUILDINGS AND PLANT
No. 1 Shaft Area.—The permanent mine general offices and the extensions to the workshops were completed. Further extensions were made to the Electricity Supply Commission sub-station and two 2,500 K.V.A. transformers were installed.

EUROPEAN HOUSING
Work was continued on the extension to the permanent housing programme. During the quarter 7 houses were completed, bringing the total to 385 houses completed in the permanent quarters in the Virginia Township. Work is proceeding on a further 34 houses, 32 flats and on the extension to the Mess.

LABOUR
The labour strength at the end of the quarter was: Europeans, 486; Natives, 3,393.

CAPITAL EXPENDITURE
Capital Expenditure amounting to £1,510,188 was incurred during the quarter.
The total Capital Expenditure, including preliminary expenses, incurred to September 30, 1954, amounted to £13,058,904. Included in this amount is a total of £2,598,917 expended on uranium and acid production.

HARMONY GOLD MINING CO., LTD.

(Incorporated in the Union of South Africa)

AUTHORIZED CAPITAL (in shares of 5s. each) .. £4,500,000
ISSUED CAPITAL .. £3,910,695

REPORT AND ACCOUNTS FOR YEAR ENDED JUNE 30, 1954

Summarized Receipts and Expenditure		
Net Capital Receipts—on Gold Account ..	£11,225,972	
—on Uranium Account ..	1,574,303	
Expenditure ..		£12,800,275
—on Gold Account, etc. ..	£10,298,363	
—on Uranium Plant ..	1,700,122	
		11,998,485

Excess of Current Assets over Current Liabilities .. £801,790

EXTRACT FROM DIRECTORS' REPORT

Underground development has proceeded satisfactorily and has shown that the area to be stope during the next few years is relatively free from faults and dykes. A water zone to the north-east of the Ventilation Shaft has slowed down development in the two ends in this area due to the necessity for adopting additional precautionary measures, but this has not affected the overall programme of development materially. A total of 30,127 ft. had been developed by the end of the financial year, of which 10,408 ft. were on the Basal Reef horizon. Practically all the development on this reef was sampled with encouraging results as 95.2 per cent of the footage sampled was payable with an average value of 14.7 dwt. over a channel width of 44 in. The preparation of stope faces has progressed satisfactorily since it was commenced in January, 1954, and is now sufficiently advanced to supply the first unit of the reduction works to capacity. The principle of longwall stoping will be adopted as far as possible in order to minimize the incidence of pressure bursts and to improve ventilation in the future. Test-running of the first unit of the reduction plant commenced in June, 1954, and the mine started production of gold in September. The erection of the second 45,000 ton unit of the plant has commenced and satisfactory progress has been made. Other construction work on the surface has progressed steadily and 338 permanent housing units for Europeans had been completed at June 30, 1954. Work on a further 82 houses and on the single quarters was in progress. Extensions to the non-European hostel were made and additional accommodation is in the course of construction. The 25,000 c.f.m. compressor is now in commission, further workshops were built to meet the mine's growing needs and the permanent main store and other buildings have been completed. Buildings in the course of construction include the main offices and the assay office. The South African Railways have laid a railway line from Virginia station to Glen Harmony station, which is adjacent to the mine, and the Company's private siding from the reduction works area to Glen Harmony will shortly be ready for delivery of material and equipment to the mine. In general, progress has gone according to plan and may be considered satisfactory.

Uranium.—There have been certain unavoidable delays with the construction of the uranium plant and, although progress is satisfactory, the production of uranium is likely to commence a few months later than originally anticipated. A total sum of £1,700,122 had been spent at June 30, 1954, in connection with the construction of the plant and at that date uranium loan drawings plus accrued interest amounted to £1,574,303.

Consideration is at present being given to the erection of a flotation plant on the Company's property to augment the supply of pyrite to the uranium industry. If such an installation is undertaken the capital cost would be of the order of £500,000 and, as in the case of the uranium plant, it would be provided by means of loan facilities to be arranged by the Atomic Energy Board.

Finance.—The existing borrowing powers of the Directors, namely, £6,000,000, are insufficient to cover the loans necessary to meet the capital cost of the uranium plant, now estimated at a little over £3,400,000, about £2,250,000 in respect of outstanding 6 per cent Convertible Notes, and the £500,000 in connection with the proposed pyrite plant. In addition the Company's capital funds raised last year for gold mining are now almost exhausted. In order to enable your Directors to enter into the necessary arrangements for the loan agreements in connection with the pyrite plant and also to permit the obtaining of short term loan facilities in connection with gold mining, it is recommended that the Directors' borrowing powers be increased by £1,000,000 to £7,000,000. In this connection, attention is drawn to the Notice convening the meeting.

The full Report and Accounts may be obtained from the London Secretaries, A. Moir & Co., 4 London Wall Buildings, London, E.C.2.

Mining Men and Matters

Mr. W. H. A. Lawrence, a director of The Central Mining and Investment Corporation and its General Manager in Johannesburg, will retire on December 31, 1954, after more than 35 years' service with the Group. He will be succeeded as General Manager by Mr. W. M. Frames.

Mr. L. H. Leach has resigned as managing director of Consolidated African Selection Trust and its subsidiary, Sierra Leone Selection. Mr. Leach remains a member of the respective boards.

Messrs. Jack Scott, C. W. Roper, K. A. Keith and M. Menzies, directors of Strathmore Consolidated Investments, have been appointed directors of General Mining and Finance Corporation Ltd. Mr. Jack Scott has also been appointed an additional Deputy Chairman of the Corporation.

The death is announced of Mr. W. Morris Smith, Chief Engineer of Joy-Sullivan Ltd. at their Greenock factory, at his home at Elderslie, Renfrewshire, on Saturday, September 25.

The Cornish Institute of Engineers will hold their second general meeting of members and associates at the Camborne School of Mines on Thursday, October 28, at 7.15 p.m., when the film "The World from the Air" will be shown by kind permission of Hunting Aerosurvey Ltd. and "Prospecting for Petroleum" and "Rig '20'" by kind permission of Petroleum Films Bureau.

The Associated Metals and Minerals Corporation, New York, has been named exclusive sales agency in several foreign countries for sulphur being produced at San Cristobal, Mexico, by Mexican Sulphur Company, S.A. Leopold Lazarus Ltd., Creechurch House, Creechurch Lane, E.C.3, will represent the Associated Metals and Minerals Corporation as agents in the United Kingdom and arrangements have been made for agencies in Germany, Belgium, Brazil, and Australia. The Sulphur Company will begin shipping for export in November from stockpiles which have been growing since production commenced in March last.

TENDER FOR ZINC CONCENTRATES

Burma Corporation 1951 Limited joint venture with the Government of the Union of Burma intends selling zinc concentrates with approximate analysis of 85 per cent zinc on contract for 1955 up to 32,000 tons; and for succeeding years up to 8,000 tons; quotations may be made either for 1955, or for 1955 and succeeding years. Those for long-term contract preferred. Quotations in sealed covers are to be sent to the Embassy of the Union of Burma, 19a Charles Street, Berkeley Square, London, W.1, to reach the Embassy on or before October 25, 1954. The envelope should be clearly marked "Tender for Zinc Concentrates." Further information may be obtained direct from the Secretary, Ministry of Mines, Official Director, Burma Corporation 1951 Ltd., Secretariat, Rangoon, Union of Burma.

JOHANNESBURG CONSOLIDATED INVESTMENT COMPANY, LIMITED

(Incorporated in the Union of South Africa)

MINING COMPANIES' REPORTS FOR QUARTER ENDED 30th SEPTEMBER, 1954

GENERAL REMARKS—The revenue from gold has been calculated on the basis of gold at 248s. 2d. per ounce fine for July, 248s. 4d. for August, and 249s. 7d. for September, 1954.

In determining the payable development footage, gold has been taken at 248s. 3d. per ounce fine.

The development figures are the actual results of the sampling of development work on reef; no allowance has been made for modifications which may be necessary when computing the ore reserves.

10 and 11 Austin Friars, London, E.C.2. October 15, 1954.

THE EAST CHAMP D'OR GOLD MINING COMPANY, LIMITED

(Incorporated in the Union of South Africa)

ISSUED CAPITAL.....£259,875

Crushed 62,000 tons; yielding 5,738 ounces fine gold

Revenue from Gold and Sundry Revenue	£72,009
Working Costs	154,918
Loss on Gold	£82,909
Estimated Net Revenue from Uranium (see note below)....	98,000
Profit for Quarter	£15,091

Working Costs: per ton crushed 50s.

The estimated revenue from the production of Uranium is subject to future adjustments and represents the estimated value of the output less plant operating costs and provision for interest on and repayment of the loans raised for the project.

(Note: As expenditure incurred in connection with the Uranium Project ranked as an allowance for normal tax purposes, the Company was relieved from liability for normal tax for the quarter.)

URANIUM PROJECT—Expenditure during the quarter in connection with the Uranium Project amounted to £4,663, making a total to date of £220,673; the Uranium Loan, together with accrued interest, totalled £217,212 at September 30, 1954.

DEVELOPMENT—The total footage developed for the quarter including 5,299 feet on the Bird Reef Horizon, amounted to 5,519 feet. The footage sampled for gold totalled 160 feet, all of which was payable, and which had an average value of 205.0 dwt. over 1 in.

GOVERNMENT GOLD MINING AREAS (Modderfontein) CONSOLIDATED, LIMITED

(Incorporated in the Union of South Africa)

ISSUED CAPITAL.....£1,400,000

Crushed 797,000 tons; yielding 102,207 ounces fine gold.

Revenue from Gold and Sundry Revenue	£1,302,203
Working Costs	1,214,181
Profit on Gold	88,022
Estimated Net Revenue from Pyrite (see note below)....	11,371
Profit for Quarter	£99,393

Working Costs:

per ton crushed 30s. 6d.

per fine ounce produced 237s. 7d.

The estimated revenue from the production of Pyrite is subject to future adjustments and represents the estimated value of the output less plant operating costs and provision for interest on and repayment of the loans raised for the project.

The Government's share of profits for the quarter is estimated at £7,893.

The expenditure on Capital Account (other than on the Pyrite Recovery Plant) amounted to £7,427.

PYRITE RECOVERY PLANT—Metallurgical and mechanical difficulties, which are now being overcome, were encountered in the operation of the pyrite plant during the quarter. Output was, therefore, well below the designed capacity of the plant.

Expenditure during the quarter amounted to £38,906, making a total to date of £527,162.

The amounts advanced to the Company, together with accrued interest, totalled £340,754 at September 30, 1954.

DEVELOPMENT—The total DEVELOPMENT FOOTAGE for the quarter amounted to 5,488 ft. The footage sampled totalled 4,455 ft. and gave the following results: PAYABLE, 1,220 ft., having an average value of 4.8 dwt. over 62 in. UNPAYABLE, 3,235 ft., having an average value of 1.9 dwt. over 52 in.

THE RANDFONTEIN ESTATES GOLD MINING COMPANY, WITWATERSRAND, LIMITED

(Incorporated in the Union of South Africa)

ISSUED CAPITAL.....£4,063,553

Crushed 867,000 tons; yielding 106,227 ounces fine gold.

Revenue from Gold and Sundry Revenue	£1,341,365
Working Costs	1,640,894
Loss on Gold	£299,529
Estimated Net Revenue from Uranium and Acid (see note below)	465,000
Profit for Quarter	£165,471

Working Costs: per ton crushed, 37s. 10d.

The estimated revenue from the production of Uranium and Acid is subject to future adjustments and represents the estimated value of the output less plant operating costs and provision for interest on and repayment of the loans raised for the project.

(Note: As expenditure incurred in connection with the Uranium Project ranked as an allowance for normal tax purposes, the Company was relieved from liability for normal tax for the quarter.)

The expenditure on Capital Account (other than on the Uranium Project) amounted to £105.

URANIUM PROJECT—Expenditure during the quarter in connection with the Uranium Project amounted to £589,256, making a total to date of £6,210,533; the Uranium Loan, together with accrued interest, totalled £6,169,583 at September 30, 1954.

The uranium treatment plant is now operating virtually at full capacity. Mining operations on the uranium bearing Bird Reefs are being extended in order to prepare the mine to supply the additional ore required for the extension to the uranium plant, which is expected will be completed by the end of the year.

DEVELOPMENT—The total footage developed for the quarter, including 19,420 ft. on the Bird Reef Horizon, amounted to 24,455 ft. The footage sampled for gold totalled 2,200 ft., and gave the following results: PAYABLE, 1,010 ft., having an average value of 5.8 dwt. over 38 in. UNPAYABLE, 1,190 ft., having an average value of 3.5 dwt. over 24 in.

FREDDIES CONSOLIDATED MINES, LIMITED

(Incorporated in the Union of South Africa)

SHARE CAPITAL

Authorized	£17,500,000
Issued	£16,359,913
In Reserve	£1,140,087

Crushed 272,000 tons; yielding 44,735 ounces fine gold.

Revenue from Gold and Sundry Revenue	£563,820
Working Costs	620,141
Loss for Quarter	£56,321

The expenditure on Capital Account during the quarter amounted to £483,533, which sum includes an amount of £222,000 expended on additional development.

DEVELOPMENT—The development footage for the quarter totalled 23,525 ft., made up as follows:—

Shaft	Haulages	Drives	Winzes and Raises	Crosscuts, etc.	Total
	Ft.	Ft.	Ft.	Ft.	Ft.
N 1 ..	2,826	264	507	1,564	5,161
N 2 ..	3,135	66	753	2,577	6,531
S. 1 ..	3,730	144	683	1,522	6,079
S. 2 ..	2,313	—	699	2,742	5,754
Totals ..	12,004	474	2,642	8,405	23,525

The DEVELOPMENT FOOTAGE sampled totalled 3,100 ft. and gave the following results: PAYABLE, 2,290 ft., having an average value of 55.7 dwt. over 6 in., equal to 334 in.-dwt., showing a percentage payability of 73.87 per cent. UNPAYABLE, 810 ft., having an average value of 17.3 dwt. over 7 in., equal to 121 in.-dwt.

MACHINERY AND PLANT—Work on the installation of the permanent fan at No. 1 South Shaft is in progress.

BUILDINGS AND GENERAL—Work on the erection of fifteen European dwelling houses is continuing.

Work on the erection of additional rooms at No. 2 South Compound and No. 2 North Compound has started.

OFFER OF NEW SHARES—Of the 2,377,081 new shares of £1 each, offered at par to shareholders registered on July 23, 1954, 2,280,138 shares (equal to 96 per cent) were applied for, and the remaining 96,943 shares were taken up by the underwriters.

By Order of the Board, JOHANNESBURG CONSOLIDATED INVESTMENT COMPANY, LIMITED.
London Secretaries, D. L. REYNOLDS, Secretary.10 and 11 Austin Friars, London, E.C.2.
October 15, 1954.

UNION CORPORATION, LIMITED.

(Incorporated in the Union of South Africa)

Directors' Reports of Gold Mining Companies Incorporated in the Union of South Africa, for Quarter ended 30th September, 1954.

London Office: Princes House, 95, Gresham Street, London, E.C.2.

EAST GEDULD MINES, LTD.

(Incorporated in the Union of South Africa)

ISSUED CAPITAL.....£1,800,000 STOCK IN UNITS OF 4s. EACH

Tons Milled.....	432,000			
Gold Produced (in oz. fine)....	132,854			
Yield per Ton Milled (dwt.) ...	6.15			
		Per Ton		
		Milled		
		s. d.		
Working Revenue.....	£1,657,676	..	76	9
Working Costs	679,453	..	31	5
WORKING PROFIT.....	978,223	..	45	4
Sundry Revenue less Sundry Expenditure....	2,040			
TOTAL PROFIT (subject to taxation and Government's share).....	£980,263			
Estimated Taxation and Government's share of profit	£537,800			
Capital Expenditure	£4,033			
	PAYABLE DEVELOPMENT			

DEVELOPMENT :

	Footage driven	Footage sampled	Footage payable	%	Average value dwt.	Width in.	In./dwt.
Main Reef	2,498	1,845	1,410	76	19.0	25	476

GEDULD PROPRIETARY MINES, LTD.

(Incorporated in the Union of South Africa)

ISSUED CAPITAL.....£1,460,857 IN SHARES OF £1 EACH

Tons Milled.....	291,000			
Gold Produced (in oz. fine)....	47,334			
Yield per Ton Milled (dwt.) ...	3.25			
		Per Ton		
		Milled		
		s. d.		
Working Revenue.....	£591,101	..	40	8
Working Costs	489,120	..	33	8
WORKING PROFIT.....	101,981	..	7	0
Sundry Revenue less Sundry Expenditure....	4,690			
TOTAL PROFIT (subject to taxation).....	£106,671			
Estimated Taxation	£37,700			
Capital Expenditure	Nil			
	PAYABLE DEVELOPMENT			

DEVELOPMENT :

	Footage driven	Footage sampled	Footage payable	%	Average value dwt.	Width in.	In./dwt.
Black Reef	3,331	2,310	530	23	2.9	68	200
Kimberley Reef ..	428	340	50	15	7.2	18	129

THE GROOTVLEI PROPRIETARY MINES, LTD.

(Incorporated in the Union of South Africa)

ISSUED CAPITAL.....£2,859,704 STOCK IN UNITS OF 5s. EACH

Tons Milled.....	555,000			
Gold Produced (in oz. fine)....	118,838			
Yield per Ton Milled (dwt.) ...	4.28			
		Per Ton		
		Milled		
		s. d.		
Working Revenue.....	£1,481,276	..	53	5
Working Costs	818,719	..	29	6
WORKING PROFIT.....	662,557	..	23	11
Sundry Revenue less Sundry Expenditure....	4,265			
TOTAL PROFIT (subject to taxation and Government's share).....	£666,822			
Estimated Taxation and Government's share of profit	£345,800			
Capital Expenditure	£13,887			
	PAYABLE DEVELOPMENT			

DEVELOPMENT :

	Footage driven	Footage sampled	Footage payable	%	Average value dwt.	Width in.	In./dwt.
Main Reef	7,180	5,810	2,445	42	15.5	11	171

MARIEVALE CONSOLIDATED MINES, LTD.

(Incorporated in the Union of South Africa)

ISSUED CAPITAL.....£2,250,000 IN SHARES OF 10s. EACH

Tons Milled.....	207,000			
Gold Produced (in oz. fine)....	52,897			
Yield per Ton Milled (dwt.) ...	5.11			
		Per Ton		
		Milled		
		s. d.		
Working Revenue.....	£659,962	..	63	9
Working Costs	412,997	..	39	11
WORKING PROFIT.....	246,965	..	23	10
Sundry Revenue less Sundry Expenditure....	1,622			
TOTAL PROFIT (subject to taxation and Government's share).....	£248,587			
Estimated Taxation and Government's share of profit	£120,100			
Capital Expenditure	Nil			
	PAYABLE DEVELOPMENT			

DEVELOPMENT :

	Footage driven	Footage sampled	Footage payable	%	Average value dwt.	Width in.	In./dwt.
Main Reef	4,655	3,130	1,695	54	21.6	13	281
Kimberley Reef ..	5,816	3,800	865	23	10.5	20	209

ST. HELENA GOLD MINES, LTD.

(Incorporated in the Union of South Africa)

ISSUED CAPITAL.....£4,812,500 IN SHARES OF 10s. EACH

Tons Milled.....	276,000			
Gold Produced (in oz. fine)....	62,333			
Yield per Ton Milled (dwt.) ...	4.52			
		Per Ton		
		Milled		
		s. d.		
Working Revenue.....	£776,975	..	56	4
Working Costs	578,286	..	41	11
WORKING PROFIT.....	198,689	..	14	5
Sundry Expenditure less Sundry Revenue....	7,949			
TOTAL PROFIT (subject to taxation and Government's share).....	£190,740			
Estimated Taxation and Government's share of profit	Nil			
Capital Expenditure	£158,148 including £10,542 spent on excess development footage.			
	PAYABLE DEVELOPMENT			

DEVELOPMENT :

	Footage driven	Footage sampled	Footage payable	%	Average value dwt.	Width in.	In./dwt.
Basal Reef	12,322	5,695	3,795	67	12.0	31	371

VAN DYK CONSOLIDATED MINES, LTD.

(Incorporated in the Union of South Africa)

ISSUED CAPITAL.....£2,766,000 IN SHARES OF 10s. EACH

Tons Milled.....	237,000			
Gold Produced (in oz. fine)....	40,285			
Yield per Ton Milled (dwt.) ...	3.40			
		Per Ton		
		Milled		
		s. d.		
Working Revenue.....	£502,400	..	42	5
Working Costs	498,382	..	42	1
WORKING PROFIT.....	4,018	..	4	
Sundry Revenue less Sundry Expenditure....	870			
TOTAL PROFIT (subject to taxation and Government's share).....	£4,888			
Estimated Taxation and Government's share of profit	Nil			
Capital Expenditure	£1,555			
	PAYABLE DEVELOPMENT			

DEVELOPMENT :

	Footage driven	Footage sampled	Footage payable	%	Average value dwt.	Width in.	In./dwt.
Main Reef—All shafts.....	8,085	5,580	1,605	29	7.1	29	207
No. 5 Shaft area included above.	3,263	2,025	810	40	6.5	26	168

ANGLO AMERICAN CORPORATION OF SOUTH AFRICA, LIMITED

(Incorporated in the Union of South Africa)

GOLD MINING COMPANIES' DIRECTORS' REPORTS FOR THE QUARTER ENDED 30th SEPTEMBER, 1954

(All Companies mentioned are incorporated in the Union of South Africa)

PRESIDENT BRAND GOLD MINING COMPANY, LIMITED

ISSUED CAPITAL.....£3,250,000

The mine reached the production stage at the beginning of August, 1954. The following results were obtained during the months of August and September:—

TONS CRUSHED.....61,000		Per Ton
		Milled
		s. d.
Working Revenue	£346,880	113 8.7
Working Costs	212,493	69 8.0
WORKING PROFIT for the two months ended September 30, 1954	£134,387	44 0.7

CAPITAL EXPENDITURE

Capital expenditure for the quarter was £550,476 bringing the total for the nine months ended September 30, 1954, to £2,105,323. Of the underground development costs incurred since production commenced, £122,000 has been charged to capital account. This amount is included in the figure of £550,476 shown above.

No. 1 SHAFT AREA.—Development for the quarter totalled 17,708 ft., of which 2,817 ft. were on the Basal Reef. The following were the results obtained:—

Sampled: 2,755 ft., averaging 142.01 dwt. over 8.03 in., equivalent to 1,140 in.-dwt.

Payable: 2,710 ft., equal to 98.37 per cent of the footage sampled, averaging 144.19 dwt. over 8.03 in., equivalent to 1,158 in.-dwt.

No. 2 SHAFT AREA.—Development for the quarter totalled 3,569 ft. None of this development was on reef. The cutting of the main pump station and sumps continued but both this work and development were delayed by the intersection of water-bearing strata.

VAAL REEFS EXPLORATION AND MINING COMPANY, LIMITED

ISSUED CAPITAL.....£1,825,000

DEVELOPMENT.—The development footage for the quarter totalled 9,835 ft., and gave the following results:—

Sampled: 2,430 ft., averaging 92.81 dwt. over 5.56 in., equivalent to 516 in.-dwt.

Payable: 2,145 ft., equal to 88.3 per cent of the footage sampled, averaging 101.96 dwt. over 5.62 in., equivalent to 573 in.-dwt.

No. 1 SHAFT SYSTEM

No. 1 VERTICAL SHAFTS.—The erection of the sinking hoists of the ventilation shaft was completed and the shaft was sunk to a depth of 64 ft. below the collar during the quarter.

Good progress was made on the erection of the concrete headgear and the sinking hoists of the main shaft and it is anticipated that sinking operations will commence at this shaft towards the end of the current year.

No. 1 SUB-VERTICAL SHAFTS.—The sub-vertical ventilation shaft was sunk 896 ft. to a total depth of 1,219 ft. below the main bank on 40 level. Stations were cut at 47 level and 50 level and a crosscut was advanced from each station. The erection of the platform hoist and the 1,800 H.P. permanent rock hoist at the sub-vertical main shaft was nearing completion at the end of the quarter. The excavation for the sheave wheels has been completed and slipping of the headgear portion of the shaft to full size has commenced.

GENERAL.—The railway line from the No. 3 Joint Shaft to the No. 1 Vertical Shafts has been completed. The construction of houses for European employees, surface workshops, compounds and other buildings is proceeding satisfactorily.

A start has been made on the excavations for the foundations of the reduction plant.

CAPITAL EXPENDITURE.—Capital expenditure for the quarter ended September 30, 1954, was £589,226, making a total of £1,167,356 for the nine months to September 30, 1954.

SPRINGS MINES, LIMITED

ISSUED CAPITAL.....£2,527,500

TONS CRUSHED.....386,000

		Per Ton
		Milled
		s. d.
Working Revenue	£667,989	34 7
Working Costs	645,880	33 5
WORKING PROFIT	£22,109	1 2

The estimated working profit for the nine months ended September 30, 1954 is £69,044.

TAXATION AND GOVERNMENT'S SHARE OF PROFITS.—It is estimated that the Company's liability under this heading in respect of profits earned during the nine months ended September 30, 1954, is £4,400.

CAPITAL EXPENDITURE.—£1,075.

DEVELOPMENT.—The development footage for the quarter totalled 6,543 ft., and gave the following results:—

Sampled: 5,790 ft., averaging 10.86 dwt. over 14.42 in., equivalent to 157 in.-dwt.

Payable: 1,730 ft., equal to 29.9 per cent of the footage sampled, averaging 25.10 dwt. over 16.55 in., equivalent to 415 in.-dwt.

WESTERN HOLDINGS, LIMITED

ISSUED CAPITAL.....£1,874,094

TONS CRUSHED.....154,000

		Per Ton
		Milled
		s. d.
Working Revenue	£722,686	93 10.3
Working Costs	427,592	55 6.4
WORKING PROFIT FOR QUARTER	£295,094	38 3.9

The estimated working profit for the nine months ended September 30, 1954 (including sundry revenue) is £584,670. No taxation and no share of profit is payable to the Government.)

CAPITAL EXPENDITURE.—£206,085.

Of the underground development costs incurred during the quarter an amount of £130,000 was charged to capital account. This amount is included in the total of £206,085.

UNDERGROUND DEVELOPMENT.—A total of 17,405 ft. of underground development was carried out during the quarter, of which 4,748 ft. were on the Basal Reef. The following were the results obtained:—

Sampled: 4,625 ft., averaging 132.57 dwt. over 6.28 in., equivalent to 833 in.-dwt.

Payable: 4,150 ft., equal to 89.73 per cent of the footage sampled, averaging 144.95 dwt. over 6.35 in., equivalent to 920 in.-dwt.

NOTE: The above figures include all development carried out on the Basal Reef horizon during the quarter.

The results obtained from Basal Reef development in the vicinity of individual shafts were as follows:—

No. 1 Shaft Area:

Sampled: 2,720 ft., averaging 132.69 dwt. over 7.13 in., equivalent to 946 in.-dwt.

Payable: 2,490 ft., equal to 91.54 per cent of the footage sampled, averaging 140.82 dwt. over 7.28 in., equivalent to 1,025 in.-dwt.

No. 2 Shaft Area:

Sampled: 1,905 ft., averaging 132.33 dwt. over 5.07 in., equivalent to 671 in.-dwt.

Payable: 1,660 ft., equal to 87.14 per cent of the footage sampled, averaging 154.06 dwt. over 4.95 in., equivalent to 763 in.-dwt.

The 41 Haulage North, which is being advanced towards the Free State Geduld property, has reached a point approximately 500 ft. from the common boundary by the end of the quarter. The Basal Reef was intersected at this point and of the 79 ft. of reef development accomplished in this area during the quarter, 70 ft. was sampled, all of which proved payable, averaging 99.30 dwt. over 15.73 in., equivalent to 1,562 in.-dwt.

LORAINÉ GOLD MINES, LIMITED

ISSUED CAPITAL.....£5,538,173 10 0

(NOTE: (a) 5,377,025 of the reserve shares are under option at 12s. 6d. per share to January 31, 1955.

(b) As consideration for the subscription of shares and the provision of loan facilities, the Anglo American Corporation of South Africa, Limited, has been given the right up to and including December 31, 1957, to subscribe for 2,750,000 reserve shares in the Company at the price of 20s. per share.)

CAPITAL.—By Special Resolution passed at an Extraordinary General Meeting of Shareholders held on October 5, 1954, the Authorised Capital of the Company was increased from £7,500,000 to £9,625,000, divided into 19,250,000 shares of 10s. each.

In terms of the arrangements concluded with Anglo American Corporation of South Africa, Limited, the Corporation has subscribed at 20s. per share for 4,953,372 shares in the Company and the Company has purchased £4,953,372 of 6 per cent Notes held by Anglo American Corporation and associated companies at par.

As consideration for the subscription of these shares and the provision of loan facilities, Anglo American Corporation of South Africa, Limited, has been given the right, exercisable up to and including December 31, 1957, to subscribe at 20s. per share for 2,750,000 shares in the Company.

UNDERGROUND DEVELOPMENT.—During the quarter, a total of 24,041 ft. of underground development was accomplished, of which 3,081 ft. were on Basal Reef. The following were the results obtained:—

Sampled: 3,015 ft., averaging 36.41 dwt. over 6.26 in., equivalent to 228 in.-dwt.

Payable: 2,290 ft., equal to 75.95 per cent of the footage sampled, averaging 42.93 dwt. over 6.26 in., equivalent to 269 in.-dwt.

Note: The above figures include all development carried out on the Basal Reef horizon during the quarter.

The results obtained from Basal Reef development in the vicinity of individual shafts were as follows:—

No. 1 SHAFT AREA:

Sampled: 2,600 ft., averaging 37.83 dwt. over 6.07 in., equivalent to 230 in.-dwt.

Payable: 2,025 ft., equal to 77.88 per cent of the footage sampled, averaging 43.79 dwt. over 6.09 in., equivalent to 267 in.-dwt.

No. 2 SHAFT AREA:

Sampled: 415 ft., averaging 29.20 dwt. over 7.47 in., equivalent to 218 in.-dwt.

Payable: 265 ft., equal to 63.86 per cent of the footage sampled, averaging 37.59 dwt. over 7.57 in., equivalent to 285 in.-dwt.

Development operations at No. 1 Shaft were adversely affected by a strike by underground workers from August 30 to September 3, 1954, and by a serious accident in the shaft which was caused by a runaway locomotive and which resulted in the shaft being out of commission from September 9 to September 16, 1954.

REDUCTION PLANT.—Satisfactory progress was made on all sections of the plant under construction. The plant started operating for test purposes on October 1, 1954.

CAPITAL EXPENDITURE

Capital Expenditure for the quarter ended September 30, 1954, was £918,302, bringing the total for the nine months to September 30, 1954, to £2,546,844.

EAST DAGGAFONTEIN MINES, LIMITED

ISSUED CAPITAL.....	£1,865,000	
TONS CRUSHED.....	282,000	
		Per Ton Milled
		s. d.
Working Revenue	£594,608	42 2
Working Costs	454,434	32 3
WORKING PROFIT.....	£140,174	9 11

The estimated working profit for the nine months ended September 30, 1954, is £419,778.

TAXATION AND GOVERNMENT'S SHARE OF PROFITS.—It is estimated that the Company's liability under this heading in respect of profits earned during the nine months ended September 30, 1954, is £186,900.

CAPITAL EXPENDITURE.—Nil.

DEVELOPMENT.—The development footage for the quarter totalled 5,608 ft., and gave the following results:—
Sampled: 3,795 ft., averaging 13.22 dwt. over 7.23 in., equivalent to 96 in.-dwt.

Payable: 1,045 ft., equal to 27.5 per cent of the footage sampled, averaging 25.09 dwt. over 9.53 in., equivalent to 239 in.-dwt.

Kimberley Reef: In addition, a total of 5,362 ft. was accomplished on the horizon of the Kimberley Reef.

Sampled: 4,340 ft., averaging 20.82 dwt. over 3.77 in., equivalent to 78 in.-dwt.

Payable: 935 ft., equal to 21.5 per cent of the footage sampled, averaging 55.49 dwt. over 4.32 in., equivalent to 240 in.-dwt.

PRESIDENT STEYN GOLD MINING COMPANY, LIMITED

ISSUED CAPITAL.....£2,444,174 15s. 0d.

(NOTE: Of the 2,223,301 reserve shares of 5s. each, 2,000,000 are under option to Anglo American Corporation of South Africa, Limited, at 20s. per share to June 30, 1955.)

TONS CRUSHED.....	152,500	
		Per Ton Milled
		s. d.
Working Revenue	£572,134	75 0.4
Working Costs	431,293	56 6.8
WORKING PROFIT FOR QUARTER.....	£140,841	11 5.6

The estimated working profit for the six months ended September 30, 1954 (including sundry revenue) is £164,238. No taxation and no share of profit is payable to the Government.

CAPITAL EXPENDITURE.—£819,902.

Capital expenditure on the construction of the Uranium Plant was £550,852. Of the underground development costs incurred during the quarter, an amount of £135,000 was charged to capital account. Both of these amounts are included in the total of £819,902.

UNDERGROUND DEVELOPMENT.—During the quarter a total of 20,314 ft. of underground development was accomplished, of which 4,574 ft. were on Basal Reef. The following were the results obtained:—

Sampled: 4,515 ft., averaging 78.09 dwt. over 8.02 in., equivalent to 626 in.-dwt.

Payable: 4,170 ft., equal to 92.36 per cent of the footage sampled, averaging 83.79 dwt. over 7.99 in., equivalent to 669 in.-dwt.

Note: The above figures include all development carried out on the Basal Reef horizon. The results obtained from Basal Reef development in the vicinity of individual shafts were as follows:—

No. 1 Shaft Area:

Sampled: 2,435 ft., averaging 46.64 dwt. over 8.77 in., equivalent to 409 in.-dwt.

Payable: 2,105 ft., equal to 86.45 per cent of the footage sampled, averaging 51.69 dwt. over 8.83 in., equivalent to 456 in.-dwt.

No. 2 Shaft Area:

Sampled: 2,080 ft., averaging 123.22 dwt. over 7.15 in., equivalent to 881 in.-dwt.

Payable: 2,065 ft., equal to 99.28 per cent of the footage sampled, averaging 124.30 dwt. over 7.13 in., equivalent to 886 in.-dwt.

REDUCTION PLANT.—The extensions of the plant to a milling capacity of 125,000 tons a month were complete by the end of the quarter.

URANIUM PLANT.—Satisfactory progress was maintained on all sections of the plant under construction.

THE SOUTH AFRICAN LAND AND EXPLORATION COMPANY, LIMITED

ISSUED CAPITAL.....	£433,125	
TONS CRUSHED.....	308,000	
		Per Ton Milled
		s. d.
Working Revenue	£708,442	46 0
Working Costs	540,310	35 1
WORKING PROFIT.....	£168,132	10 11

The estimated working profit for the nine months ended September 30, 1954, is £491,100.

TAXATION AND GOVERNMENT'S SHARE OF PROFITS.—It is estimated that the Company's liability under this heading in respect of profits earned during the nine months ended September 30, 1954, is £207,100.

CAPITAL EXPENDITURE.—£7,886.

DEVELOPMENT.—The development footage for the quarter totalled 14,157 ft., and gave the following results:—

Sampled: 10,140 ft., averaging 13.39 dwt. over 19.32 in., equivalent to 259 in.-dwt.

Payable: 4,415 ft., equal to 43.5 per cent of the footage sampled, averaging 24.67 dwt. over 20.89 in., equivalent to 515 in.-dwt.

WESTERN REEFS EXPLORATION AND DEVELOPMENT COMPANY, LIMITED

ISSUED CAPITAL.....	£1,750,000	
TONS CRUSHED.....	354,000	
		Per Ton Milled
		s. d.
GOLD—		
Working Revenue	£854,641	48 3
Working Costs	659,456	37 3
WORKING PROFIT.....	£195,185	11 0
URANIUM—		
Working Profit (Estimated).....	£396,000	
TOTAL WORKING PROFIT.....	£591,185	

The estimated total working profit for the nine months ended September 30, 1954, is £1,614,957.

TAXATION AND GOVERNMENT'S SHARE OF PROFITS.—It is estimated that the Company's liability under this heading in respect of profits earned during the nine months ended September 30, 1954, is £3,100.

CAPITAL EXPENDITURE.—Nil.

URANIUM LOANS.—Quarterly instalment, redemption and interest £151,193.

DEVELOPMENT.—The development footage for the quarter totalled 20,715 ft., and gave the following results:—

Sampled: 10,915 ft., averaging 14.23 dwt. over 22.77 in., equivalent to 324 in.-dwt.

Payable: 5,855 ft., equal to 53.6 per cent of the footage sampled, averaging 22.93 dwt. over 24.20 in., equivalent to 555 in.-dwt.

VAAL REEF.—The above figures include the following footages and values in development on the Vaal Reef horizon:—

Footage Driven: 6,988.

Sampled: 2,825 ft., averaging 59.65 dwt. over 11.35 in., equivalent to 677 in.-dwt.

Payable: 2,150 ft., equal to 76.1 per cent of the footage sampled, averaging 71.86 dwt. over 12.19 in., equivalent to 876 in.-dwt.

FARMS GOEDGENOEG No. 62 and NOOITGEDACHT No. 53.—In addition, a total of 1,826 ft. was accomplished in portions of these farms which are outside the Mining Lease Area.

Results were:—

Sampled: 1,010 ft., averaging 11.23 dwt. over 34.06 in., equivalent to 382 in.-dwt.

Payable: 685 ft., equal to 67.8 per cent of the footage sampled, averaging 13.09 dwt. over 40.63 in., equivalent to 532 in.-dwt.

DAGGAFONTEIN MINES, LIMITED

ISSUED CAPITAL.....	£1,750,000	
TONS CRUSHED.....	688,000	
		Per Ton Milled
		s. d.
GOLD—		
Working Revenue	£1,976,823	57 6
Working Costs	997,022	29 0
WORKING PROFIT.....	£979,801	28 6
URANIUM—		
Working Profit (Estimated).....	367,000	
TOTAL WORKING PROFIT.....	£1,346,801	

The estimated total working profit for the nine months ended September 30, 1954, is £3,856,930.

TAXATION AND GOVERNMENT'S SHARE OF PROFITS.—It is estimated that the Company's liability under this heading in respect of profits earned during the nine months ended September 30, 1954, is £1,325,600.

CAPITAL EXPENDITURE.—£54,306.

URANIUM LOANS.—Quarterly instalment, redemption and interest £127,825.

DEVELOPMENT.—Main Reef Leader: The development footage for the quarter totalled 4,504 ft., and gave the following results:—

Sampled: 4,275 ft., averaging 13.88 dwt. over 11.64 in., equivalent to 162 in.-dwt.

Payable: 1,905 ft., equal to 44.6 per cent of the footage sampled, averaging 22.93 dwt. over 13.09 in., equivalent to 300 in.-dwt.

Kimberley Reef: In addition, a total of 8,400 ft. was accomplished on the horizon of the Kimberley Reef.

Sampled: 6,595 ft., averaging 5.06 dwt. over 26.26 in., equivalent to 133 in.-dwt.

Payable: 1,645 ft., equal to 24.9 per cent of the footage sampled, averaging 18.52 dwt. over 22.20 in., equivalent to 411 in.-dwt.

BRAKPAN MINES, LIMITED

ISSUED CAPITAL.....	£1,150,000	
TONS CRUSHED.....	329,000	
		Per Ton Milled
		s. d.
Working Revenue	£686,799	41 9
Working Costs	650,452	39 6
WORKING PROFIT.....	£36,347	2 3

The estimated working profit for the nine months ended September 30, 1954, is £122,053.

TAXATION AND GOVERNMENT'S SHARE OF PROFITS.—It is estimated that the Company's liability under this heading in respect of profits earned during the nine months ended September 30, 1954, is £10,700.

CAPITAL EXPENDITURE.—Nil.

DEVELOPMENT.—The development footage for the quarter totalled 12,497 ft., and gave the following results:—

Sampled: 9,570 ft., averaging 5.29 dwt. over 45.16 in., equivalent to 239 in.-dwt.

Payable: 2,780 ft., equal to 29.0 per cent of the footage sampled, averaging 12.77 dwt. over 49.87 in., equivalent to 637 in.-dwt.

FREE STATE GEDULD MINES, LIMITED

ISSUED CAPITAL.....£1,768,151 10s. 0d.

(NOTE : £3,925,333 10s. 0d. of 6% Registered Convertible Notes issued by the Company are convertible at any time up to and including January 29, 1955, into shares in the Company of 5s. each at a price of 55s. per share.)

UNDERGROUND DEVELOPMENT.—During the quarter a total of 14,830 ft. of underground development was accomplished, of which 1,475 ft. were on Basal Reef. The following were the results obtained :—

Sampled : 1,445 ft., averaging 106.42 dwt. over 5.92 in., equivalent to 630 in.-dwt.

Payable : 1,290 ft., equal to 89.27 per cent of the footage sampled, averaging 115.09 dwt. over 6.03 in., equivalent to 694 in.-dwt.

NOTE : The above figures include all development carried out on the Basal Reef horizon.

The results obtained from Basal Reef development in the vicinity of individual shafts were as follows :—

No. 1 Shaft Area :

Sampled : 1,345 ft., averaging 104.94 dwt. over 6.07 in., equivalent to 637 in.-dwt.

Payable : 1,190 ft., equal to 88.48 per cent of the footage sampled, averaging 113.85 dwt. over 6.21 in., equivalent to 707 in.-dwt.

No. 2 Shaft Area :

Sampled : 100 ft., all of which proved payable, averaging 139.48 dwt. over 3.85 in., equivalent to 537 in.-dwt.

NO. 1 SHAFT AREA.—Excellent progress was made on the lining of the upcast section of the shaft during the quarter.

The intersection of water-bearing fissures, necessitating cementation, and considerable faulting retarded development operations.

NO. 2 SHAFT AREA.—Five main pumps were installed and commissioned on the permanent station on 51 level. The orepasses between the 45 and 51 levels were nearing completion. Satisfactory progress was made on the cutting of the belt station and the installation of the measuring bins in the shaft. It is expected that on completion of this work in the near future the development footage from this shaft will increase.

The intersection of water-bearing strata, necessitating cementation, retarded development operations.

DRIVE FROM WESTERN HOLDINGS, LIMITED.—The 41 Haulage North, which is being advanced from Western Holdings No. 1 Shaft towards the Company's property, had reached a point approximately 500 ft. from the common boundary at the end of the quarter. The Basal Reef was intersected at this point and of the 79 ft. of development accomplished on reef in the area, 70 ft. were sampled, all of which proved payable, averaging 99.30 dwt. over 15.73 in., equivalent to 1,562 in.-dwt.

CAPITAL EXPENDITURE.—Capital Expenditure for the quarter ended September 30, 1954, was £751,772, bringing the total for the nine months to September 30, 1954, to £2,018,233.

REDUCTION PLANT.—Good progress was maintained on all sections of the plant under construction.

London Office : 11 Old Jewry, E.C.2.
October 15, 1954.

For and on behalf of ANGLO AMERICAN CORPORATION OF SOUTH AFRICA LIMITED,
W. E. GROVES, London Secretary.

WELKOM GOLD MINING COMPANY, LIMITED

ISSUED CAPITAL.....£2,500,000

(NOTE : As consideration for granting the Company loan facilities up to an amount of £1,500,000, the Anglo American Corporation of South Africa, Limited, has been given the right to subscribe at any time prior to December 31, 1957, up to 1,000,000 shares in the Company at the price of 30s. per share.)

TONS CRUSHED.....229,000

		Per Ton
		Milled
		s. d.
Working Revenue	£578,596	50 6.4
Working Costs	545,507	47 7.7
WORKING PROFIT FOR QUARTER	£33,089	2 10.7

The estimated working profit for the nine months ended September 30, 1954 (including sundry revenue) is £49,166. No taxation and no share of profit is payable to the Government.

CAPITAL EXPENDITURE.—£632,253.

Capital expenditure on the construction of the Uranium Plant amounted to £505,839. Of the underground development costs incurred during the quarter, an amount of £18,000 was charged to capital account. Both of these amounts are included in the total of £632,253.

UNDERGROUND DEVELOPMENT.—Underground development for the quarter totalled 14,706 ft., of which 5,689 ft. were on Basal Reef. The following were the results obtained :—

Sampled : 5,585 ft., averaging 66.33 dwt. over 6.48 in., equivalent to 430 in.-dwt.

Payable : 4,345 ft., equal to 77.80 per cent of the footage sampled, averaging 82.83 dwt. over 6.36 in., equivalent to 527 in.-dwt.

SHAFT SINKING.—No. 1 Shaft : The vertical winze from the 30 level horizon was sunk 175 ft. to the 3,175 ft. elevation. Work preparatory to the deepening of the main shaft was well advanced.

No. 2 Shaft : The shaft ore pass system from 27 level to 36 level was completed during the quarter. Work continued on the cutting of the temporary pump station on 36 level and on the installation of the ventilation airways connecting 35 and 32 levels to the main upcast section of 30 level. By the end of the quarter development was being undertaken on both the 30 and 32 levels.

REDUCTION PLANT.—The extension of the Reduction Plant to a milling capacity of 125,000 tons a month was completed.

URANIUM PLANT.—Good progress continued to be made on the erection of the Uranium Plant.

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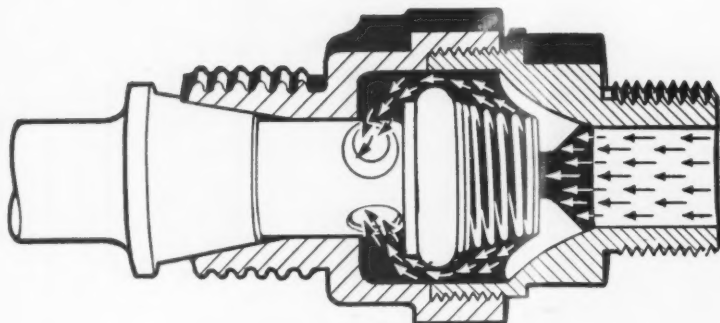
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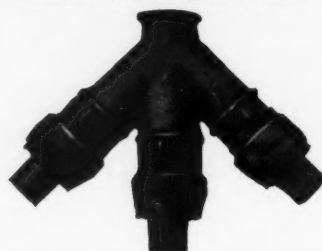
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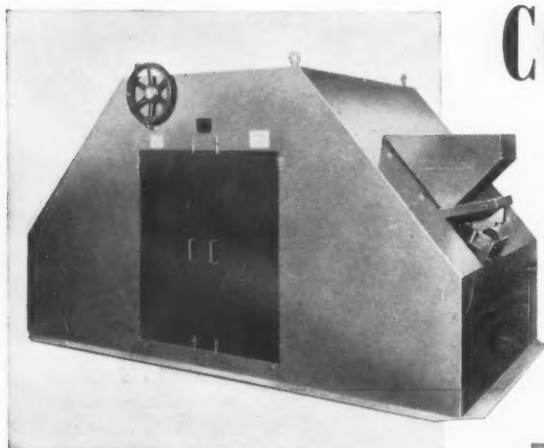
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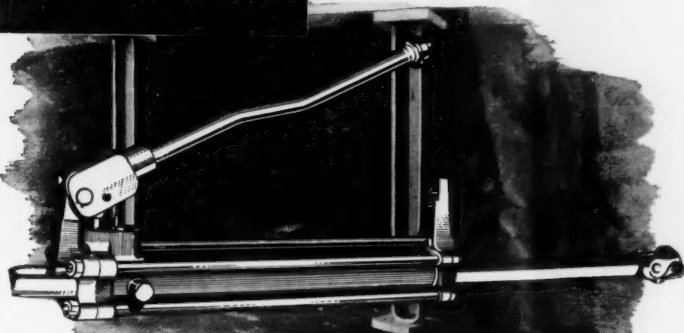


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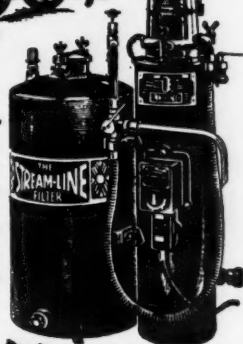
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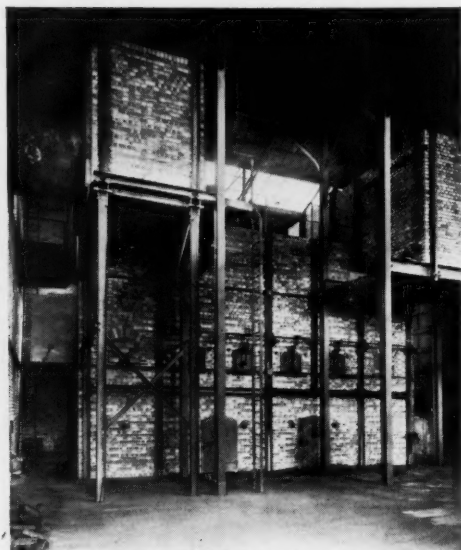
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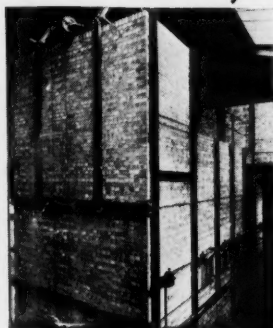
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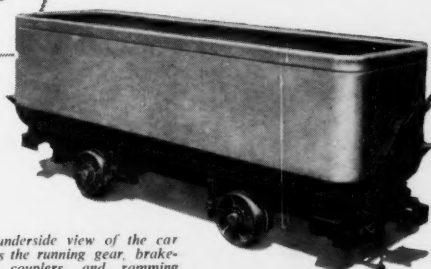
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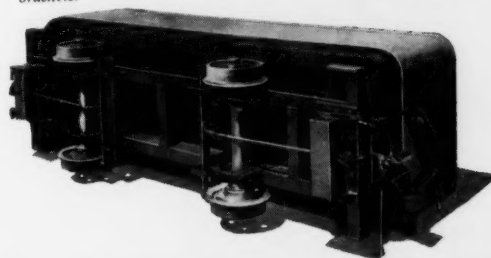
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